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AN
INTRODUCTION
TO
THE STUDY
OF
PHILOSOPHY.
WITH AN
OUTLINE TREATISE
ON
LOGIC.

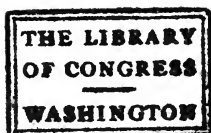
BY
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" PRESIDENT OF FRANKLIN AND MARSHALL COLLEGE.

I am the Truth.—CHRIST.



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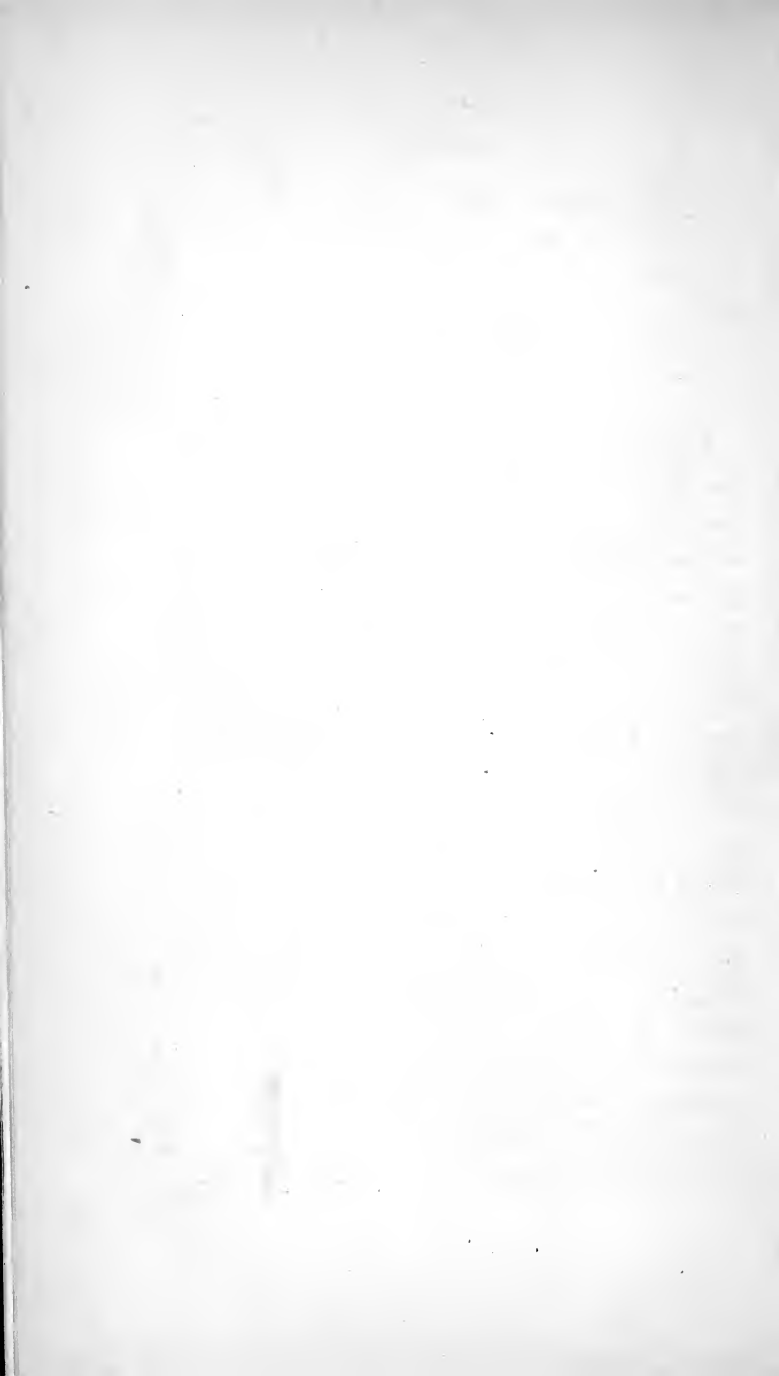
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TO
THE MEMORY
OF
FREDERICK AUGUSTUS RAUCH,
WHO FIRST LED THE AUTHOR INTO THE
REGIONS OF THOUGHT
IN THE
FAITH OF JESUS CHRIST,
This Volume
IS DEDICATED,
IN TOKEN OF A PUPIL'S
UNCHANGING GRATITUDE AND VENERATION.



P R E F A C E.

IT has been generally assumed by leading philosophers that there is no necessary internal connection between sound metaphysical speculation and the person of Jesus Christ. Metaphysics in general, or any particular system of philosophy, and the Christian Religion, are, it is held, distinct and different spheres of thought, and are, in consequence, not determined by a common principle, though, like the circumferences of contiguous circles, they touch and may even intersect each other. Were Christ but a single individual, and the Christian Religion co-ordinate with any of the other religions of the world, there would be propriety in the assumption. But if Christ be the generic man as well as a single individual; if He possess all the attributes, original wants and tendencies of perfect humanity; if besides He be the real union of the human with the divine nature; and if as such He be the all-pervading principle of a system of religion which is absolute;—then Christianity as a whole must answer to every distinctive attribute of man, to the deepest tendencies of the reason, and to every law of thought; and Christ must, at the same time, be the principle of every form of speculation or

every system of thought that really conforms to, and satisfies, the demands of the reason. For it would involve a positive contradiction, to presume that different systems of truth, which meet the same general conditions of the human mind, can originate in mutually exclusive principles.

To believe in Christ as the Word made flesh and in Christianity as the absolute world-religion, and to hold this belief with logical consistency, requires us to assume, therefore, that true philosophy and Christianity are not to be divorced, but are internally and necessarily connected. Though distinct systems, the one starting with the intuitive beliefs of the reason, and proceeding according to the subjective laws of thought, the other starting with a fact of supernatural revelation and then unfolding itself from it as from a germ, according to the objective law of organic growth, they are nevertheless not separable much less contradictory; but both presuppose the same fundamental necessity in human nature, the necessity to believe and to know involved in the relation of subject and object, and both follow and embody the same order or method in the process of development. The method of thinking which determines every branch of true philosophy corresponds to the objective order of life unfolded in Christianity. And as Christ is the principle of Christianity, it follows that He is Himself the highest concrete form of the method of thinking which must underlie and pervade every process of legitimate ratiocination.

Whilst the author has no doubt in his own mind of the truth of the general principle here laid down, it is with great diffidence that he submits a short *Introduction to Philosophy* which is based upon it; for he is fully alive to the difficulties involved in the solution of the problems that have arisen at every step of his progress. Indeed at his own instance he would scarcely have ventured upon the work. In undertaking it, he was influenced, in a great measure, by the judgment of his friend, Doctor Schaff. Aware of my intention to publish an Outline Treatise on Logic, he, at different times, suggested to me to write an Introduction to this Science, or to the study of philosophy in general. To these suggestions was added the want of a suitable text-book for this department of a college course, the sense of which I had long felt in my experience as a Teacher; particularly the want of a book that would proceed consistently on the assumption of an inward harmony between logical thinking or legitimate metaphysical disquisition and the Religion of Jesus Christ. Under these circumstances, I have been led to attempt a concise discussion of the general subject. Though I do not flatter myself that all the questions preliminary to the study of the various branches of philosophy have been discussed, or that any of them have been answered to the entire satisfaction of scholars, yet the work is an earnest inquiry into the relation of Christ to scientific thinking; and under this view it is offered as an humble contribution to the cause of Christian philosophy.

As the work is designed primarily for Colleges, I have been guided in the preparation of it, as regards the order of thought and external plan, mainly by my judgment of the wants of students. This design, however, will not interfere with its use by those generally who take an interest in philosophic studies. As regards manner, it was my only aim to write in a simple, compact, and perspicuous style. The needless use of technical terms has been avoided. In using them when necessary, the same sense has, as nearly as possible, always been attached to them.

My idea of an *Introduction* adapted to the wants of students did not allow me to refer, in the course of discussion, except when it was unavoidable, to conflicting opinions and theories. To do so properly would have given it a polemical cast to a degree that, in my judgment, would not be either desirable or advantageous. A positive and direct method of treatment is preferable. If the positions, the train of reasoning, and the conclusions be true, they will find access to the mind of the reader in virtue of their own self-authenticating power. My silence should, therefore, not be construed into a want of due respect for, or a want of a sense of great indebtedness to the profound thinkers who have started with different principles and elaborated different theories.

The *Outline Treatise on Logic* is a free, and somewhat amplified, translation of a German work by Dr. Beck, originally published in Stuttgart, in 1845. As I lay claim only to a patient endeavor to reproduce the original under

an English form, it will be no violation of modesty to say a few words touching its merits.

The design of Dr. Beck was to prepare an Outline Treatise as a text-book, which should include such matter only as it is necessary for a student in a Gymnasium or College to study, and to pursue such a method in elaborating the material as would itself discipline the mind to logical thinking. The book testifies to his eminent success. Beginning with certain fundamental principles, he advances from them step by step, making each position depend logically on that which has preceded it, and evolves a complete system that excludes nothing which the successful *learner* must know, and includes nothing which he can fail to know without interfering with a clear comprehension of the whole. The Treatise is profound, scientific, comprehensive, and brief; and, therefore, possesses rare value as a text-book. For the value of a text-book, especially in philosophy, depends not so much upon the amount of matter which it contains, as upon being so constructed that the student is required to *think*, to think closely and systematically, and to remember accurately, in order to succeed at all in mastering the subject. Pursuing the study of Logic in this way his mind passes through a process of efficient logical training whilst acquiring a knowledge of the Science.

A word or two in regard to its brevity.—Whilst a good text-book is the basis of instruction and an important aid to both Pupil and Teacher, it is not the exclusive, nor yet the principal, agent in the work of thorough education.

That is to be found in the Teacher himself. The classroom is not the place where he is to ascertain simply what the class has learned, though this is an important part of his duty—for education does not consist in gathering and treasuring up the thoughts of others ;—but it is the place particularly of instruction and mental discipline, where the Teacher should discuss, unfold, and illustrate the subject of study in his own way ; for thus most effectually may he awaken the interest of his pupils, incite them to earnest, independent thought, and draw out and mould all the powers of the mind. This constitutes the chief work of an educator. To perform it well, he needs a text-book that will assist him in *teaching*, require the pupil to *think* and to *learn*, and at the same time facilitate the exercises of recitation. The unusual brevity combined with the comprehensiveness of this Treatise is therefore to be regarded not as a great deficiency, but as one of its peculiar merits. The abstruse discussions which it omits, especially the numerous subtle modifications of the syllogistic formula, it is well for the Teacher or more mature scholar to be familiar with, but they are remote from the immediate and practical wants of the learner.

In relation to Whateley's Logic and other works of kindred character, it may be proper to say, that I do not ignore nor depreciate their merits ; but as they differ on the points just mentioned from Dr. Beck's Treatise, they do not render the publication of it in the English language superfluous.

With no desire but to aid in advancing the interests of Science and Religion, I submit this volume to my fellow-laborers in the work of higher education, and to the scientific community in general, in the hope that, in some measure at least, it may be adapted to promote the end which it has in view.

E. V. G.

FRANKLIN AND MARSHALL COLLEGE,
Lancaster, Pa., Dec. 1857.

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AN INTRODUCTION

TO THE

STUDY OF PHILOSOPHY.

INTRODUCTION TO PHILOSOPHY.

§ 1.

PRELIMINARY VIEW OF THE GENERAL SUBJECT.

PHILOSOPHY, according to the etymology of the word, is the love of wisdom—the natural tendency of the human mind to know the truth. This tendency awakes spontaneously, is active with greater or less intensive force in every age of the world, and leads from time to time to certain definite results. These form a succession of systems of received truth. Some of them are based the one upon the other, each succeeding system being a more full development or a different application of the same method of thinking. Others are in conflict, and mutually destructive. Yet all of them, whether contradictory or harmonious, are in some measure in affinity; for they possess

certain essential elements in common. They represent the earnest efforts of the reason to satisfy its inmost longings—its longings to know the varied objects arresting its attention, in their ground, in their mode of existence, and in all their connections. They are therefore to be regarded each as a part of a continuous process going on in the sphere of thought. The general result of this process at any given period is philosophy, namely, that which the reason has wrought out and holds for truth; the word being used to express both the cause and the effect—the tendency to know the truth, and scientific knowledge itself.

The organ of philosophy is the reason. The reason philosophizes. It assumes a point of observation, and then endeavors to solve the problems of philosophy in the light of its position and according to the laws of thought. The character of the inquiry is thus determined by the reason itself, as well as by the objects whose nature it investigates. What is the reason? what is the right point of observation? and what are the laws of thought according to which an inquiry must be conducted? are, therefore, questions of fundamental importance. The answer

possesses the force of a plastic power that moulds the whole structure of philosophy.

The reason does not only inquire into the nature of the objects by which it is surrounded. It inquires also into itself—into its own nature, susceptibilities, powers, and relations. This gives rise to the Science of the Soul, or Psychology. And it inquires into its fundamental operations and laws of thought. This gives rise to the Science of Logic. Philosophy includes Logic; the one is the general, the other the particular; the one the trunk, the other a branch. Hence, a system of Logic is always connected with some corresponding system of philosophy, which exerts upon it a determining influence.

As the reason is the organ of philosophy, a correct view of the reason conditions a correct view of the nature of philosophy; and as philosophy embraces logic, a sound philosophy is in order to a true conception of logic—of its nature, peculiar province, and necessary relations.

An Introduction to the study of Logic and Philosophy does not construct a particular system either of the one or of the other, but it unfolds and establishes the general principles upon which a true system of both may be constructed. It

designs to lead the earnest inquirer into the boundless field of thought, to give him the true point of observation, make him acquainted with the different classes of objects that lie within the compass of his vision, point out the errors to which he is exposed, and imbue him with a sound method of thinking, in order that he may be prepared to carry forward independent researches, and come into possession of a scientific knowledge of truth as regards both the object and the subject of thought.

The relation of the reason to philosophy and of philosophy to logic, suggests the natural order of discussion. The whole subject may accordingly be treated in five chapters, as follows: 1. The Reason; 2. Consciousness; 3. The Nature of Philosophy; 4. A True System of Philosophy; and 5. Logic and its Relations.

CHAPTER I.

THE REASON.

§ 2.

THE REASON DEFINED.

THE word *reason* has various senses. It is sometimes used as synonymous with understanding, or as denoting a particular faculty of the mind. Employed in its more general sense, it signifies the immaterial or spiritual part of man's constitution, as distinguished from that which is material, or the body. We say: man is endowed with reason; meaning that reason is something which is peculiar to man, and distinguishes him generically from all lower orders of creation. In this general sense, we propose to use the word.

The human reason is *an order of created spirit existing in vital union with a material body*. The principle of its activity the reason bears in itself;

but this activity is in and through the organs of the body. The body, in turn, conditions and modifies the normal activity of the reason. In man, therefore, the reason and the body constitute a unity; they are one; not that they are identical; the reason **and** the body, spirit and matter, differ in kind. Nor are they combined, or conjoined externally, as though either one could have an existence independently of union with the other. But both enter into and make but one human constitution; as the life-power in a tree and its gross material, make but a single vegetable growth.

All sound and consistent philosophic inquiry proceeds upon this twofold conception of man.

§ 3.

THE REASON AN ORGANIC ENTITY.

As an order of created spirit, the human reason is an organic entity.

It is an *entity*; that is, it possesses objective existence. It is a real being, and has its own qualities or attributes, which distinguish it gene-

rically from the essence and attributes of matter. These qualities reveal themselves as the immediate facts of self-consciousness. The reason may know itself as it is. But it does not exist because it manifests itself in self-consciousness; on the contrary, it manifests itself in self-consciousness because it is a real spiritual being.

The reason is an *organic* entity. It is a living being. Like the body, the reason begins to be in a state of involution; all its attributes are in it potentially as in a germ; and it comes to be itself actually by a process of evolution, which goes forward according to the law of its own life.

The law of rational life is a necessity in the constitution of the reason, according to which it begins to be as a whole, composed of many undeveloped members. Manifold faculties and susceptibilities are comprehended potentially in one principle of life. As these faculties are gradually unfolded, their functions and relations are determined by the force of this principle, which is common to them all. Thus one principle, or germ of the reason, unfolds a variety of powers or members; and these in the common possession of one life, and in their common relation to its principle, constitute one objective totality, or an organic whole.

§ 4.

THE RELATION OF THE REASON TO THE BODY.

The incipient and progressive development of the reason depends upon the normal development of the body. As the body of a child grows, the capacity of sensation is unfolded; and sensation becomes the medium through which suitable objects from without first excite, then draw out and nourish, the latent energies of the reason. These suitable objects are the parent, the family, or the teacher; not the body simply, nor the contact of body with body; but the tuitional power of reason itself breathing in looks, words, and manners, upon the rational nature of the child, and affecting it through the sensations of a material organism. It is the developed reason, active through the body, which is the indispensable condition of the incipient activity of the undeveloped reason. The reason kindles the reason; the one acting, the other acted upon; but both possible only through the body.

The peculiar qualities of the reason, however, its laws of life and fundamental ideas, are what they are independently of the human body; that

is, they do not in any sense originate in sensation or derive their nature from it. The reason, as an organic entity, has a being of its own as really as the human body, and is as distinct in its essential attributes from the body, as the essential attributes of the body are distinct from those of a vegetable or mineral. The body and the affections of the body, or sensation in general, constitute but the *condition* of excitation, on which the development of the ideas and laws of the reason depend. These ideas and laws are not, therefore, impressed upon the reason from without, but are unfolded from within; just as the laws of the human body, the development of which depends upon food and drink, light, air, &c., being its conditions, are not impressed upon it by the vegetable or mineral kingdom, but are unfolded from the principle of its own life, and constitute its specific attributes.

A condition denotes a subordinate relation of an object to a germ or to an organism. That is a condition, the presence and influence of which are necessary, not that something else may obtain existence and its essential attributes, but that it may unfold and perfect itself. An organism unfolds and perfects itself in virtue of its intrinsic

energy, but by means of certain objects brought into contact with it, which it appropriates and assimilates to its own nature. A, for example, is the condition of B, when the presence of A is necessary, in order that B may develop itself according to the law of its own being. B, however, does not derive its being and essential attributes from A; these belong to the constitution of B, but remain in a latent state—or, if B is developed, the law of its life cannot continue to be normally active—until the relation of A to B, as its condition, is established and continued. The relation being established, B becomes active normally, and develops its qualities from itself, but in the process of development it appropriates the properties of A, and transforms them into the elements of its own nature.

The distinction to be made between the reason as it is in itself and its necessary outward conditions, is very important. The reason develops its essential qualities from its own being; it is an organic entity; but depends for its normal development and vigor upon proper excitation and nourishment from without through the senses. Outward objects do indeed modify its ideas and laws; still these ideas and laws are emphatically

its own. The *principle* and the *condition* of development are plainly two essentially different things. Fatal errors arise in philosophy from confounding them.

§ 5.

THE RELATION OF THE REASON TO GOD.

Though the being and essential attributes of the human reason are independent of sensation and the body, yet its original ground is not in itself, nor is it sufficient for itself. An order of created spirit, it has its original ground in, that is, it derives its being from, the Creator, God, a personal, self-existent, absolute Being. Hence, a sense of dependence on a Supreme Power is one of its first manifestations. Divine rays give a distinct coloring to the intellectual firmament as the sun approaches the horizon. And when the full orb lays open the fresh field of consciousness, one of the first objects clearly seen is the everywhere present but mysterious and infinite power of the Godhead. Or, to drop the figure, when a man begins to know and to think consistently,

the idea of God is implied in, and interwoven with, all his notions and every train of thought. The reason refers itself spontaneously to God; in other words, it falls back or rests upon Him, if not in a true yet in a false way, as an objective basis that imparts order and validity to all the activity which it puts forth.

Thus, whilst the normal development of the reason depends, especially in its incipient stages, upon the functions of the body, a lower stratum of existence, as its condition, the being and activity of the reason are nevertheless subordinate to the Creator, from whom it derives its sufficiency; just as the human body itself, whilst depending on the presence of the lower material world as the condition of its development, and possessing a life strictly its own and specifically different from surrounding objects, is, nevertheless, subordinate to the reason and derives its sufficiency from it. For the capacities and powers of the body can be duly employed, or rather the idea and design of the body can be fully actualized, only under the sustaining and directing power of the mind.

The relation of the reason to God is, therefore, analogous to the relation of the human body to

reason. The life of the human body is generically different from the life of the vegetable; the life of the reason is generically different from the life of the body; and the being of God is essentially different from the being of the human reason. But the vegetable is subordinate to the wants of the human body; the human body is subordinate to the ideas of reason; and the reason is subordinate to the will and plan of God. Hence, the human body appropriates the vegetable to itself, and thus transforms it into the elements of a higher constitution. The reason appropriates the body to itself; that is, it pours its own spiritual light over the body, and transfers it, as it were, from a lower to a higher sphere, by using the bodily powers in giving outward form to thoughts, and accomplishing the higher purposes of human life, thus connecting these powers with rational action and rational ends. And in like manner does the Creator appropriate the human reason to Himself; in other words, the reason, in order to be true to itself, must hold itself spontaneously and consciously in subordination to God; or rather, it knows and wills itself to be apprehended of God, and held by Him in communion with Himself. He pours His own uncreated light

upon the reason, which, though active in the sphere of the natural, He binds to the sphere of the supernatural, thus connecting it with divine plans and divine ends.

The result of these inquiries exhibits the relative position of the reason, not as it is in the present state of man, but as it is in its normal state. The introduction of moral evil has disturbed its normal relations and perverted its activity. The actual position of the human reason is not now, consequently, what it was originally,—a fact that cannot be denied or ignored without giving a false direction to psychological investigations. In order, however, to get a true conception of the Nature of Philosophy and the Province of Logic, to which this discussion is preliminary, it is necessary to understand the relative position of the human reason in the original constitution of humanity.

§ 6.

THE OFFICE OF THE REASON.

We are now prepared to institute an inquiry into *the office* of the reason.

The office of the reason may be said to be threefold: 1. To believe; 2. To do, or to be active; and 3. To know.

These manifestations do not succeed each other separately; they are rather different forms of one life in process of unfolding itself. To believe implies activity and some perception of an object, more or less clear, and this perception is some degree of knowledge. To do, or to be active, implies a being or entity which is active, and an object upon which the activity is directed. To know is a rational activity, assuming that there is a person who knows, and an object that is known. Hence, to believe, to do, and to know, as predicates of the reason, are rather *in* each other than separate from and successive to each other. There is an objective order, however, in which these manifestations of one life, stand, which determines the subjective order in a system of thought. That order is the one now stated.

It is not entirely consistent, however, with philosophical accuracy to say that the office of reason is threefold. The division is reducible; for, to believe and to know, are only different forms of rational activity. It would be correct to say, therefore, that the office of reason is twofold: 1. To be-

lieve, and 2. To know. But even these two ultimate forms must not be thought of as separate from each other. They are at bottom two general attributes of one act; for knowledge rests on belief as its basis and is pervaded by it; and belief is properly the incipient stage of knowledge.

§ 7.

THE REASON BELIEVES.

The human reason begins to be in a state of involution. The process of evolution is slow and gradual. At first the reason dawns; then becomes brighter; and, finally, is entirely above the horizon. Consciousness, which is the proper state of the developed or developing reason, is in consequence at first dark or confused; then it becomes more distinct; and finally is clear, distinguishing accurately between self and the world, and between different objects in the world.

Now, in every stage of development there is one form of rational activity which precedes all others: the reason assumes itself and its objects to be. This is the first act, or rather it is implied

in the whole process of growing consciousness, and is a necessity grounded in the nature of things. Being is in order to its attributes or manifestations, and not the reverse. Life is in order to its activity. Substance is in order to its accidents. The reason is in order to consciousness. The reverse order can never have place. The activity or manifestations of a living entity are never the basis or ground of its life. To suppose the manifestations of a being to be in order to the being itself, or the phenomenal to be in order to the metaphenomenal, as at all possible, throws all thinking into confusion: it is an evident absurdity. Thinking must always proceed upon the assumption: a thing *is*, therefore, it is active or manifests itself. Thinking must proceed upon this assumption, because such is the constitution of the reason which thinks, and such is the constitution of every object upon which the reason thinks, whether created or uncreated. God *is*, therefore He creates and upholds the universe. The relation of the reason to consciousness and of belief to knowledge, corresponds, therefore, to the relation of all being to its manifestations or phenomena; of life to its activity; and of God to all forms of revelation.

Accordingly, the first act of the reason presupposes the existence of the reason: the first degree of consciousness assumes that the reason *is*, which puts forth an act of consciousness. The assumption enters into the nature of consciousness as its principle; and every form of expression of consciousness in language exhibits the presence and force of this principle. We say, for example, I see; I see the moon; I hear; I hear the music. Such an expression of consciousness assumes two things: 1. That self which sees through the eye, *is*: *I* see; and 2. That the object which makes an impression or affects the reason through sensation *is* also: I see *the moon*. Otherwise the expression is utterly meaningless. How could a child say: I see the moon; if its rational nature did not spontaneously assume both itself and the object to be! And the assumption is as necessary for the learned philosopher as for the child. For neither the existence of self nor of the world, *can* be established by a process of logical proof. The first step in a demonstration would involve a begging of the question at issue. The simplicity of a child is greater wisdom, than the labored reasoning of a skeptic in an attempt to prove

what the constitution of his nature does not permit him to doubt.

Thus both the expression of consciousness, or language, as well as the relation of consciousness to the reason, establish the position, that reason assumes itself to be in the first and every act of consciousness. And it assumes the world to be, or to have an existence, in the first and every act of consciousness of the world.

It is as expressing this first form of the activity of the reason, that we use the word *belief*, and say: it is the office of the human reason to believe; that is, it must hold that to be true which it does not comprehend, or which it does not know to be true from reasoning or from logical proof. With this assumption, which the reason makes intuitively, all reflection and legitimate metaphysical inquiry begin. Without it, every effort at reasoning is self-contradictory. Belief is in order to knowledge, and in order to logical thinking.

§ 8.

THE ACTIVITY OF THE REASON.

The activity of the reason is implied in all that has thus far been said of its normal development. It is implied also in all that follows relating to knowledge. Yet it is in place to speak of the reason as *active*, or of its impulse *to do*, in a separate section.

The reason is active before it can be said to know. In its first stages of development, it has a dark sense of itself, of the world, and of God, then a confused perception, but not such a clear conception as may properly be called knowledge. A clear conception of itself and of that which is not itself, is consequent upon the process of development advanced to its higher stages. The development of the reason is, accordingly, the subjective condition of knowledge; for it is the developed reason, not the undeveloped reason, which knows. And knowledge, strictly speaking, is the result of the activity of the reason, not the cause. We do not account for the activity of a person by the fact that he knows—a fact that is only the evidence or manifestation of activity,

—but we account for his knowledge by the fact, that the reason is active normally. For the activity of the reason we account on the ground of an inner impulse which is part of its nature. This impulse determines the general activity of the reason—a process unfolding its manifold powers. It also determines its activity in some given particular direction. A man does not apply himself to the study of sculpture because he understands and appreciates the art. But he possesses a natural talent, which, either awakening of itself under the stimulus of a proper development, or awakened by the influence of some special outward occasion, directs his attention to this department of the Fine Arts, and impels him to concentrate his efforts upon it. A thorough knowledge and appreciation of sculpture is thus, not the ground, but the consequence of the study and practice of the art; and the study and practice of the art is determined, not by knowledge, but by an innate tendency of the reason.

Knowledge, however, reacts upon the reason. It does not awaken the reason. It does not impart any essential attributes to the activity of the reason. But it modifies its activity. Knowledge may stimulate the reason to greater and higher

activity, and nourish all its powers. Just as hunger impels a man to eat, whilst the taste of food sharpens and strengthens his appetite. Observation and experience may serve also to perfect any particular form of activity. A given degree of knowledge and skill indicates the point to which the genius of a sculptor has been drawn out, and qualifies him at the same time to put forth greater and better efforts than any he had put forth before. Whilst, therefore, knowledge in general, or any particular form of knowledge, is the effect of the activity of the reason, knowledge in turn produces an effect upon the reason by modifying, strengthening, and perfecting its activity.

§ 9.

THE REASON KNOWS.

To know implies a distinction which is to be made between subject and object. The subject is that which feels or knows, the *Ego*, or *I*, and may belong to any order of spiritual or rational being. The object is that which is known, and embraces all orders and classes of existence:

God, angels, man, the animal, the vegetable and mineral kingdoms, in short, God and the universe. Subject and object, now, are correlative conceptions, and can be understood each only in the light of the other.

That is a subject which in feeling or thought lies under, and is thus affected by or takes hold of something else. The something else is in each case the object. That is an object, then, which lies before or presents itself to a thinking and feeling being. The object, relative to the subject, exists independently of the subject; it has a nature of its own, and is, therefore, superior under this view to the subject. The subject, relative to the object, is dependent upon the object; the possibility of feeling or thinking depends upon the subject, but that which the subject feels or thinks is determined by the object; it is, therefore, subordinate to the object. The state of the subject is according to the object, but the state of the object is according to itself.

To illustrate the relation, we will take the propositions: I see the tree; I know the character of Washington. The subject is I, or self; the object, the tree. In seeing, self is affected by the tree through sensation. The possibility and qua-

lity of seeing depends on self; but the possibility of seeing the tree, depends on the existence and presence of the tree. The tree is a tree whether seen or not; but the act of seeing the tree cannot be without the tree. The object, relative to the subject, is thus independent of the subject and superordinate to it. The subject, relative to the object, is dependent upon and subordinate to it. The object determines, the subject is determined. The tree determines self according to what the tree is; whilst self, capable of seeing, yields to being determined as to what it sees. When, therefore, I say: I see a tree, I, as the subject, subordinate myself to the tree, which, as the object, determines me, as to my sensation and conception, according to what it is independently of the act of seeing. So, too, as regards the second proposition. The character of Washington is what it is whether I know it or not; and I possess the capacity of knowing whether Washington lived or not. But when I know *his* character, I as the subject, lay hold of it as the object, and am determined, as to the matter or contents of my knowledge, by it, according to what it is in itself.

In both cases, the proposition implies that the

existence of the object is as certain as that of the subject. Here lies a principle in the relation of subject to object—of thought to being,—which is of fundamental importance to positive philosophy, a principle that will be more fully unfolded in another part of this work.

The human reason, now, is a subject in relation to that which it believes and upon which it thinks. That which lies before it, or of which it thinks, is the object. The reason lays hold of the object, and is determined by the object as to the matter of its conceptions and ideas. The object, thus apprehended by the activity of the reason, comes to exist in the reason. When the object exists in the reason as it exists in itself, the reason knows. To know, then, is to possess an object in idea as it is in reality; or it is the subjective existence of an objective entity. The reason holds the object in itself. The object is known, and the reason knows; the one determining the contents or matter and the other the form of knowledge. Human knowledge is, therefore, a union of the reason and its object or objects; in which union the object receives an ideal form from the reason, and the reason receives its contents or the matter of knowledge from the object.

CHAPTER II.

CONSCIOUSNESS.

§ 10.

THE OBJECTS OF THE REASON.

THE objects of the human reason may, in the first place, be regarded as twofold: itself and that which is not itself; or the *ego* and the *non-ego*. The *non-ego* includes the external visible world, or the order of existence lying around man; and God, or the absolute Being from whose creative power all things are derived. The *non-ego* must, therefore, be subdivided. Thus the objects of the reason become threefold: self, the external world, and God.

But this mode of statement is objectionable. It sets self, the world, and God, side by side, as if they were co-ordinates; or rather, it seems to take self as the centre of things, the point of ob-

servation, from which the division is made, whilst in reality self is a relative entity. The ground and centre of things is God. God is, therefore, the true point of observation from which a correct division of knowable objects is to be made. Under this view, the division is, in one sense, the same as before, namely, threefold: God, self, and the world, these being the primary facts of consciousness to which the mass and endless variety of human knowledge are reducible. But the internal relation is different. God is the absolute entity, to whom self and the world are referred as created things, and in the light of whom alone these can be truly known. Thus the unity of human knowledge finds its last principle in God.

To each of these primary facts of consciousness, or knowable objects, man sustains an immediate relation; that is, nothing intervenes between himself and the object as the condition upon which his knowledge depends; but he knows in virtue of a direct correspondence between himself and the object of knowledge.

§ 11.

THE CONSCIOUSNESS OF SELF, OR SELF-CONSCIOUSNESS.

The immediate object of the reason may be self, viewed in the totality of its constitution, or as comprehending the soul and the body: the soul with all its attributes, and the body with all its powers and functions. Or, using the term soul in a narrower sense, self comprehends body, soul, and spirit.

Self, viewed as the object of the reason, is, therefore,

1. The body, namely, that part of man's constitution by which he stands in immediate connection with the outer world. This connection exists through the medium of the senses, the eye, the ear, the taste, &c., which as organs of the body adapt man to acquire a knowledge of the world, and appropriate it to the satisfaction of his wants.

2. The soul, that is, the higher or immaterial part of man, in its immediate relation to, and as directly affecting and affected by, the body. Like the body, the soul, too, possesses its peculiar powers or organs, such as perception, conception, judgment, &c., through which it is adapted to its

own sphere of action—to know through the senses, to reflect on itself, and to use what it knows.

3. The spirit, that is, the higher or immaterial part of man, in its immediate relation to and as directly apprehending God and supernatural objects. Like the soul and the body, the spirit is endowed with powers or organs of its own, adapting it to the sphere of the supersensible—the infinite—the absolute. The ruling organ of the spirit is faith. Faith is to the spirit, what the eye or the ear is to the body, or the judgment is to the soul. And through the spirit, faith is to the soul and the body, what through the body the ear is to the soul and the spirit.

Body, soul, and spirit do not cohere externally, but are the constituents of one concrete organic whole. The spirit pervades and is active in the faculties of the soul and in the members of the body; and the body through sensation modifies the conceptions of the soul and the loftiest views of the spirit.*

* According to § 2, we use the word *reason* to denote the immaterial part of man under both aspects—in its relation to the sensible and the supersensible spheres of existence.

Self is, accordingly, neither a *single* nor a *compound* entity, but a mysterious *unity*. As such it is, under every aspect of its being, its own object. Man knows himself. Subject and object, that which feels and is felt, which thinks and is thought of, are identical. Thus, being both the object that is known, and the subject which knows, self determines both the matter and the form of knowledge. This is *self-consciousness*. In its incipient stage it is but a sense of self. Then it becomes a clear conception or a knowledge of self as an existence. As self-consciousness advances, it begins to be not only a knowledge that self exists, but a knowledge also of what self is. In its higher and last stages, self exists subjectively as it does objectively; or the reason holds self in idea as it is in reality.

But as self is related by its constitution to the world and to God, self-consciousness cannot be developed normally, much less can it become complete, by itself. Self-consciousness can become complete only as unfolded with the knowledge of God as the ground, and the knowledge of the world as the condition of self.

§ 12.

THE CONSCIOUSNESS OF THE WORLD, OR WORLD-
CONSCIOUSNESS.

With the sense and the consciousness of self arise the sense and consciousness of the external world as something different and separate from self. The development of the reason and, consequently, of self-consciousness depends, as we have seen (§ 4), upon the normal development of the body; and the normal development of the body depends upon a variety of outward natural conditions. This state of dependence is not accidental, but belongs to the constitution of man; for he is not an isolated being. He begins to be under certain necessary relations to the external world; and his whole nature can unfold itself normally only under the influence of these relations. The reason being thus active spontaneously and acted upon from without, or active and passive at the same time, a sense of self and of the external world awake simultaneously; the one implies and presupposes the other. The incipient stage of self-consciousness is, in consequence, also the incipient stage of world-con-

sciousness ; or self-consciousness and world-consciousness are but two forms of human consciousness—two branches growing out of one living trunk.

It follows that the external world is, like self, an immediate object of the reason ; that is, no third entity intervenes between self as the subject and the external world as the object of knowledge. There is an internal correspondence between man as a sensuo-rational being, and the external world as a knowable object ; and his sense and conception of the external world as an objective entity, different from himself, spring directly out of this reciprocal relation. In other words, the knowledge of the existence of the outer world is neither the result of reflection nor a conclusion derived from any process of reasoning. On the contrary, man has a certain knowledge of its existence before he begins to reflect ; and this knowledge constitutes the basis upon which all reflection rests, and upon which every inductive process of investigation into the nature and laws of the world, must proceed.

Here we are confronted by the sceptical theory that the immediate object of the reason is, not the external world itself, but only the sensations

which we have of it. The theory proceeds upon a dualistic view of human nature, body and soul being regarded, not as integral parts of an organic unity, but as in some sense separate orders of being, which are held in juxtaposition in some undefinable way. Hence, in an inquiry into the relation of man to the outer world in knowledge, the body seems to intervene as another something that does not belong essentially to either.

This species of dualism involves a confusion of subject and object, an integral part of the subject being taken for the object. It involves also a confusion of condition and object. The outer world is the object; and sensation is the subjective condition of a knowledge of it. The body is the organ of the reason—that by which self is directly connected and holds communion with sensible realities.

That the theory is both unphilosophical and false follows both from the nature of man considered as a whole, and from the nature of sensation considered by itself.

If body and soul enter into the constitution of man as essential parts of a living organic whole, the senses must be regarded, in the discussion of world-consciousness, not as belonging to the ob-

ject, but as belonging to the subject. Whilst the body and the soul are specifically different, and we must therefore distinguish between them, we dare not separate them and hold them asunder as if they were not vitally one. The body with all its sensations is a part of self, no less than the reason with all its faculties. Hence a person refers *seeing*, an activity of the body, to himself, no less than *thinking*, an activity of the reason ; both activities being predicates of the same personality. We say: *I* see a horse, and, *I* think of God. The one is no less a spontaneous, natural, and true form of expression than the other. Philosophical accuracy does not require us to say: *the eye* sees a horse, or, *my eye* sees a horse, as if the eye were itself the subject, or a separate subject from the personality which puts forth the act.

That sensation is not the immediate object of consciousness follows also from the nature of sensation itself. A simple sensation is a change in the state of the sense, or an affection of the sense ; or, call it an impression made upon an organ of the body and through it upon the mind. Accept either form of definition, and two things are implied : a subject in which the change takes place, and an object which in some way produces the

change: a subject affected, and an object affecting: a subject receiving an impression, and an object making an impression. We cannot think of the one without thinking of the other also. The two things are correlative, as really as *father* and *son*. The very conception of sensation always implies the existence of something outside of the sense which excites it or causes the sensation; that is, it implies the existence of an object. This is the only meaning of the word. An object is that which lies before or against, and affects or impresses, the sense and the reason. To say, therefore, that not the external world but sensation itself is the immediate object of consciousness, involves a confusion of thought and a contradiction of terms. Sensation is but the first and lowest form of the activity of one indivisible being, under which the reason comes into immediate contact with the order of sensible things which lies around and outside of it.

Under this form of activity, a knowledge of the outer world is acquired. To acquire such knowledge implies an idea of its objective existence, and the power of transferring it in conception to the sphere of thought. It is transferred by the reason in virtue of sensation as the neces-

sary condition upon which the activity of the reason depends. Thus transferred, the reason holds its object, the outer world, in its own sphere. And this knowledge is true and perfect in proportion to the correspondence of the world as it is in idea to the world as it is in reality.

§ 13.

- THE CONSCIOUSNESS OF GOD, OR GOD-CONSCIOUSNESS.

The human reason is not an ultimate entity; but in feeling and thought refers itself intuitively to God as its ground. § 5. What does this relation involve?

The original ground of a being is that from which a being derives its existence and nature.

The relation is necessary. The being is what it is, both in itself and in its relation to other things, only in virtue of its ground.

The relation is fundamental. It is the first relation in the order of nature; and the basis, therefore, of all other relations. All other relations are possible only in consequence of this.

The relation is reciprocal. The ground determines the nature and relations of the being; and

the nature and relations of the being demand the determining force of the ground.

The relation is immediate. Nothing intervenes between the ground and the being as a condition upon which the nature of the being depends. The being has the condition of its existence in the ground only.

There is, in consequence, an inward adaptation of the activity and attributes of a being to its ground, an adaptation that lies in the essence of the being, and is more intimate than the adaptation of a being to any other relation or to any other object.

As the relation of the reason, an order of created spirit, to God, the absolute Creator, is that of a being to its original ground, it involves the particulars which have now been stated.

The relation of the human reason to God is necessary. The reason is what it is because of God who has given it being. Hence it cannot put forth a normal act of self-consciousness without recognizing or implying the existence of God. God is; therefore the reason is. God is, and the reason is from God; therefore the developed reason has an idea of God, and must have an idea of God.

The relation is fundamental. The first in the order of its being and activity, the reason sustains other relations in virtue of this as their basis. Hence the idea of God underlies all other ideas. A true idea of self and of other objects is possible only when it rests in a true idea of God.

The relation is reciprocal. God determines the nature of the reason; He determines its relation to Himself, to itself, and to the world; and the nature, the relations, and the office of the reason, demand the determining influence of God with inward necessity.

The relation is immediate. The reason refers itself to God under all the forms of its activity in virtue of its nature; that is, no third entity intervenes between the reason and God from which the idea of God is derived. If the reason be but normally developed, the idea is evolved out of its own being as an original element, or an immediate fact, of consciousness.

There is, in consequence, an inward adaptation of the essence and laws of the reason to God. And God alone meets the first and deepest want of man in all the spheres and relations of life.

These principles must follow from a correct idea of creation. God, a personal infinite Spirit,

is the Creator, and man, a sensuo-rational being, is His creature. That is to say, God is the ground of the reason of man, and the reason is grounded in God. Thus He is immediately before man as an object upon which His spirit fixes its eye; and the spirit seeks to attain to a conception of Him corresponding to what He is in Himself.

§ 14.

THE NECESSITY AND UNITY OF CONSCIOUSNESS.

The mass of human knowledge being reducible to three primary elements, self, the world, and God, we have unfolded a threefold consciousness: self-consciousness, world-consciousness, and God-consciousness. A threefold consciousness arises from a threefold relation in which the reason stands in virtue of the constitution of man. The threefold relation is necessary; it is not the result of will or choice, nor a consequence of knowledge, but it springs directly out of what man is as a part of the universal whole, the creation of God.

Hence the threefold consciousness which is de-

terminated by this threefold relation, is necessary also. It is not optional with the reason whether it will have any primary ideas or not, nor whether it will have but one or two, for example, the idea of self and of the world, but not the idea of God. It has them before volition to the contrary is possible, because the law of human life operates spontaneously and with irresistible force from the moment of birth; and once unfolded no amount of resolution or effort can ever root them out. The sceptic himself has them. If he had them not—if he had not the idea of the world, for instance, he could not doubt its reality; as little as a sane man could disinherit his son, if he did not believe himself to be a father. So too with the atheist. It is only because a man has the idea of God, that he can pronounce that idea a lie, and argue against God's existence. An atheistic system, paradoxical as it may sound, is nevertheless built on the idea that God is; true, in the way of negation and opposition; yet a man cannot deny that of which he has no idea, nor oppose that which he does not suppose to exist. The possibility of a negative always depends upon the assumption of a positive.

The ideas of God, of self, and the world, are

necessary ideas, accordingly, in the strongest and deepest sense of the term. They are elements which are interwoven with the whole mass of human knowledge, and, in some way or other, lie at the foundation of every system, whether of truth or error.

But they are not separate or separable ideas. The reason has not three kinds of consciousness, externally related. The original elements of consciousness, like the constituents of man's being, make a unity. There is but one consciousness, branching out, however, into three directions, in obedience to the threefold fundamental relation immanent in man's constitution. With the sense of self, awakes the sense of the world and of God. And with the idea of self arises the idea of the world and of God. Hence these primary ideas also imply each other reciprocally. The idea of self implies the idea of the world; and the reverse. The idea of God implies the idea of self; and the reverse. Implying each other, they condition the process of development. The idea of God, though fundamental to other ideas and to all true knowledge, is unfolded and becomes clear and full in the degree that the idea of self and the world is unfolded at the same time.

There cannot be a true idea of God and a false idea of self, as there can be no true idea of self and a false idea of God. So there can be no full development of God-consciousness and but a partial development of self-consciousness. The development of the one goes forward in necessary connection with the development of the other. For primary ideas are internally related as parts of a whole, and thus necessitate the unity of consciousness; self-consciousness, world-consciousness, and God-consciousness being but different manifestations of human consciousness.

§ 15.

THE RELATION OF FAITH TO CONSCIOUSNESS.

We must recur to a principle discussed in § 7. The existence of the reason is in order to its development. The development of the reason is in order to consciousness. And the existence of any object is in order to a manifestation and to a consciousness of that object. That is to say, the reason *is* before it can be active or know; and a knowable object *is* before the reason can know it through its phenomena. We need not attempt

anything more than a simple statement of the principle; for it is self-evident, though frequently ignored in systems of philosophy. The principle is a fundamental law of the objective order of things; and to this fundamental law the activity of the reason conforms spontaneously in consciousness.

When, therefore, I say: I know myself, I know the outer world, I know God, the reason necessarily assumes three other propositions to be certainly true, namely, I am, the outer world is, and God is. This necessary assumption is an intuitive belief—a belief, because it holds that for truth which is seen as such without proof, and intuitive, because it springs directly from the nature of the reason. Consciousness accordingly is grounded in the principle of faith. It implies the certain existence both of object and subject. The reason does not believe in the existence of an objective entity in consequence of a knowledge of it; but the reason knows it to exist, and may know what it is, in consequence of a belief in its existence.

The relation of faith to consciousness, is the relation of a life-power to its immediate operation; there is, therefore, no succession of the

latter to the former, which is perceptible to the understanding.

As belief is in order to consciousness, and consciousness is threefold, it follows that a threefold consciousness is grounded in a threefold belief—in the belief that self is, that the outer world is, and that God is. The primary ideas are but the forms under which these intuitive beliefs of the reason arise in consciousness. The idea of self, for example, is the form under which the intuitive belief that self is, comes to view in consciousness during the process of normal development. So, too, of the idea of the world and of God. As man is a unity, these several beliefs are reducible to one principle or power, that is active in and pervades the three fundamental relations in which he stands.

The endless variety and all possible degrees of human knowledge are comprehended in a threefold consciousness. A threefold consciousness is reducible to three primary ideas which the reason evolves out of itself. These primary ideas are the forms under which the necessary beliefs of the reason come to view. And these beliefs are but one principle active in different relations. The whole compass of human knowledge is thus

reducible to the power of one principle, which is faith;—a principle in man that not only the mysteries of religion, but all philosophy, every department of science, and every process of logical proof or mathematical calculation presuppose.

There is no room, therefore, for a consistent system of negative philosophy. To construct a system at all, the reason must assume some proposition as fundamental, that is, receive it as a primary truth; but in making the assumption, and yet holding that the certain existence of an object cannot be known, or that the reason cannot receive anything as true without a demonstration, the system contains two self-contradictory positions; and is, in consequence, self-destructive. But a positive philosophy may be consistent throughout. It may be true both to the objective nature of things, and to all the demands of the reason.

CHAPTER III.

THE NATURE OF PHILOSOPHY.

§ 16.

THE CONCEPTION OF PHILOSOPHY.

THE first impulse of the human reason is to believe; then it becomes an effort to know in the strength of its belief, or of its intuitive primary ideas; that is, to form a conception of its objects, or to hold single things in the sphere of thought as they exist in reality.

This incipient knowledge, however, does not by itself satisfy the deeper demands of the reason. It only prepares the way for a higher kind of knowledge. It serves to unfold the impulse of the reason to know according to a twofold order of law: first, according to the laws which underlie and determine the essential nature and relations of being; and secondly, according to the

laws which determine the activity of the reason or the laws of thinking. Thus we get the conception of Philosophy; which is the deepest and most comprehensive form of knowledge.

§ 17.

THE FORM OF PHILOSOPHY.

Philosophy as a form of knowledge implies a peculiar relation of subject and object, of that which knows and that which is known. The subject is the human reason, or that which thinks. The reason thinks, or is active, from a necessity of its nature, impelling it to approach, inquire into, and reproduce its object according to its intuitive ideas and its own laws.

These intuitive ideas are the inner forms of objective existence which the reason in the process of normal development evolves out of itself; or that in the conscious subject answering to the nature of the object. The laws of the reason are each a necessity determining the manner of its activity; and are called the laws of thinking. It cannot think of any object but in conformity to these laws.

Freely obeying the impulse to know, the reason finds the counterpart or prototype of its intuitive ideas in its objects, and reproduces them or gives them an existence in itself, the process of reproducing them, or of giving the object a place in the subject, being determined by the laws of thinking. Philosophy derives its *form* accordingly from the ideas and laws of the human reason.

§ 18.

THE MATTER OF PHILOSOPHY.

The *matter* of philosophy is the object of the reason reproduced according to the laws of thinking. As constituting the matter of philosophy the object of the reason is being; not a single thing, nor a class of things, nor even various classes of things in their reciprocal relations, but being as such, that is, being in its *necessity* and *generality*. For the reason does not only assume that there is an objective existence, but that this objective existence is an organic order of things resting on an absolute ground, in virtue of which the organic order is what it is.

The Necessity of Being.

The *necessity* of being consists in this, that it is itself and cannot be anything but itself. Necessity is absolute or relative.

An absolute necessity—*absolute*, from *ab* and *solvere*, to be loose or free from everything but itself—is predicable of a being that, grounded in itself, is not determined nor conditioned by anything but itself. Such necessity holds only in God.

A relative necessity—*relative*, from *re* and *ferre* to bear or carry back to something else—is predicated of a being that is derived; the necessity of its nature and relations being determined by that from which it is derived. Such necessity holds in every created object.

Philosophy has to do with being, both in its relative and its absolute necessity; but it always seeks to resolve the relative into the absolute, or to know the relative as determined by the absolute; for it is the tendency of the reason to reduce all its objects to their ultimate ground, and from this to deduce their nature, essential attributes, and relations.

The Generality of Being.

The *generality* of being is that which underlies and identifies all particular entities and phenomena in every objective sphere. In virtue of this, individuals are reducible to species, species to genera, genera to more comprehensive genera; or genera are reducible to classes, classes to orders, and orders to kingdoms or grand divisions.

The objective is susceptible, however, of still further reduction. In every objective subordinate sphere or grand division of being, the less general is successively reducible to the more general, until it resolves itself into that which is most general and comprehensive, and therefore common to all the individuals belonging to the given division. And all spheres or grand divisions of created being, whether rational or irrational, are in turn reducible to that which is deeper and broader than themselves—to that consequently which is common to and pervades all created objects.

In virtue of a common principle which is thus discoverable in these innumerable objects, they constitute, when taken as a whole, a unit, or the universe, which in all its departments and single

parts is the embodiment and expression of the wisdom, power, and goodness of the Creator. These attributes are again reducible to the Divine Will; which, as it brought the universe into existence out of nothing, has left its impress no less upon the worm or a blade of grass than upon the noblest man or the most exalted angel.

The process of generalization recedes thus from the lowest through ever widening circles, until the reason is able to hold all circles of entities, whether organic or inorganic, material or immaterial, natural or moral, each in its co-ordinate and subordinate relations to others, under one most comprehensive conception. Until the reason can comprehend each circle of entities, or sphere of being, in its relation to its principle and to all others, or until it can comprehend all spheres of being, each in its relation to the rest and to an absolute principle, which pervades them all in common, its deepest wants are not satisfied; for it is the tendency of the reason not only to reduce each object and sphere of being to its ultimate ground, but also, what is its correlative act, to discover the identity of all specific differences, or to determine the unity in the greatest multiplicity.

Necessity and generality do not cohere but inhere in being. They are not separable attributes. The one is the correlate of the other. Necessity is general, and generality is necessary. Implying each other, they are but different aspects of a unity; and in their union may be said to constitute the *law* of being.

§ 19.

THE MATTER OF PHILOSOPHY ARISING UNDER A THREEFOLD INQUIRY.

The matter of philosophy as including the necessity and generality of being, arises under a threefold inquiry: what? why? how? corresponding to the threefold fundamental activity of the reason: conception, judgment, and reasoning.

The First Inquiry, corresponding to Conception.

What? or what is it? The understanding seeks to bound off each object from all others; and thus forms a definite conception of it. This conception *includes* all its essential, in distinction from its accidental attributes; and at the same time *excludes* the attributes which are essential to other

objects. With a correct answer to this form of inquiry any particular investigation of philosophy begins. For the reason seeks first of all to distinguish the object of investigation accurately and clearly from every other. Without such distinction any attempt at inductive or deductive reasoning involves thought in confusion.

The Second Inquiry, corresponding to Judgment.

Why? or why is it? The reason inquires spontaneously: What is the principle or ground, and what is the end or design of the object? To have a definite conception of an object does not suffice. It strives to know the nature of things. To know the nature of a thing is to refer it to its proximate generality, or to know it as the individualization of some general law or principle. Anything short of this is not satisfactory. The perception of an oak simply as an isolated object possessing solidity, size, and form, is only conditional to an inquiry into the nature of the oak—into that which is more general than itself. For the general constitutes the nature of the particular. The nature of the oak is that of the tree; the nature of the tree that of the plant; and the nature of the plant that of an organism. Each

is a modification of what is more general than itself. The reason forms, therefore, on the one hand, a conception of the single oak, and on the other, seeks to know it as a tree; then seeks to know the tree as a plant, and the plant as an organism; for only when it refers the individual to the species, and the species to the genus, does it see clearly why the essential attributes of the individual are what they are. It knows that which underlies the single object and determines it to be itself. This is its nature.

Thus to refer the individual to the particular, and the particular to the general, is to judge. Judgment consists in distinguishing the particular from the general, and holding both together as a whole. When the particular is the subject, the general is the predicate; and judgment is inductive; as, The lily is a flower. When the general is the subject, the particular is the predicate; and judgment is deductive; as, God is holy. A regular series of inductive judgments is retrogressive; the reason looks at each conception successively in the light of one that is deeper and more general, thus running back until it forms a judgment whose predicate cannot in turn be recognized as a particular and taken as the subject

of another more general judgment. This predicate then becomes the ultimate and most satisfactory answer to the question, Why?

The Third Inquiry, corresponding to Reasoning.

How? or how is it? An inquiry into the necessity of a thing is associated with another. The reason has an idea of mode of being, of manner of development, or of a way in which a thing comes to be what it is, and of a relation which one thing sustains to another, as well as of a ground principle from which it is unfolded. For simple existence implies a mode of existence, development a manner of development, and succession an order of succession. Both enter into the nature of a thing. And the demands of reason are not met until it has a knowledge of both as united in its object. Hence when philosophy inquires: Why? or what is the ground principle? What is the necessity of a thing? it inquires also: How? or what is its mode of existence or activity? What is its manner of development, or the order of succession? Or how does it come to be what it is?

These two forms of inquiry are not identical; neither are they separable; but one implies the

other. The matter of philosophy does not arise accordingly under three separate questions which are mechanically connected; but it arises under a threefold form of *one* inquiry of the human reason, each form presupposing, in order to a correct and complete answer, the necessity of an answer also to the other two.

This last form of inquiry corresponds to and calls forth an act of reasoning. The reason draws a conclusion. In answer to, what? it acquires a definite conception of a given particular. In answer to, why? it discovers the necessity of the particular, or the general in which the particular is grounded. In answer to how? it discovers the manner in which the predicate of the general becomes the predicate of the particular. As the question, how? implies the question, why? and *vice versa*, so does an act of reasoning, or a conclusion, imply an act of judgment. The reason must distinguish the particular from the general before it can ascribe the same predicate to both. And an act of judgment is subordinate to and completes itself in an act of reasoning. Comprehending the particular under the general, the reason seeks to ascribe the same predicate to both, that is, to identify their attributes: a result that is reached by the process of reasoning.

§ 20.

CORRESPONDENCE OF THE FORM TO THE MATTER OF
PHILOSOPHY.

The fundamental operations and laws of the reason determine the threefold inquiry into the objective nature of being. And through this legitimate process the reason gives form to philosophy.

The matter of philosophy arises from the nature of being, the object of thought; and it arises in the development of the form. The form is not developed without the matter, and the matter is not developed without the form. Philosophy is the concretion, or union, of these two elements in its inception and at every stage of its progress.

Philosophy being a concretion of form and matter, it implies a necessary correspondence of these two different elements. The matter reciprocates the demands of the form. And this reciprocal relation in philosophy rests in a reciprocal relation between the constitution of the subject and that of the object. The reason which thinks, and being which is thought of, correspond to each other. The essence and laws of being reciprocate the primary ideas and laws of the reason.

Hence the object, the essential nature of being, suffers no violence when reproduced and held in idea according to the laws of thought; and the subject, the human reason, suffers no violence when the matter of its scientific knowledge is determined entirely by the nature and laws of being. On the contrary, the nature of being is in itself adapted to and demands a reproduction under a form which the laws of thinking determine. Under no other form can its objective nature be known. And the deepest wants of the reason are not fully met until it comes into possession of a knowledge the matter of which is at all points determined by the essence and laws of being.

The union of form and matter in philosophy is, therefore, to be regarded as in perfect harmony with the intrinsic demands of subject and object, of reason and being, the laws according to which the subject thinks being complementary to the laws according to which the object exists.

§ 21.

THE NATURE OF PHILOSOPHY DEFINED.

The matter of philosophy arises, as we have seen, under a threefold inquiry. The result of

this inquiry, conducted according to the laws of thinking, is a scientific knowledge of the essential nature and relations of the object of reason. This is philosophy. The object may be the reason itself. Philosophy then becomes the science of the reason—a particular branch of philosophy; and as such, is required to determine what the reason is, why it knows, how it knows, and solve all the problems which arise under these general questions.

Or the object may be the outer world, the visible creation as a whole, or any part of it, as the earth, the vegetable or animal kingdom, or any subordinate division. Philosophy then becomes the science of nature, of the earth, of plants or of animals, or Natural Science, Geology, Botany, Zoology, and so forth.

But the object may also be the universe viewed as an organic totality, including the reason, the outer world, as well as all possible orders and forms of existence. This is philosophy as such, or philosophy taken in its widest sense; and may be defined to be *the science of being*. As the Science of Being, philosophy is required to determine the necessity and generality of the universal order of things: the relation of each single thing

to the subordinate order of existence in which it inheres, the relation of one subordinate order to another and to all others, and the relation of all orders or systems of things to their common ground.

Fundamental to the solution of these problems is the position of the human reason itself. What is the relative position of the human reason in the universal system of things? What is its relation to itself and to all knowable objects? With the solution of this problem, any particular system of philosophy, in order to be legitimate, whether true or false, must begin. The solution becomes the principle that permeates and modifies every investigation, and determines the character of all its results.

§ 22.

RECAPITULATION.

Defining philosophy to be the Science of Being, we have three elements which enter into its nature :

1. Its *form*, which is derived from the human reason. The reason knows, and can know only,

according to its primary ideas, and laws of thought. Its knowledge of objective existence assumes shape and order therefore under its own moulding power. Hence philosophy is Science in the highest sense of the word.

2. Its contents or *matter*, which is derived from, and determined by, the nature of the object. Subject and object, or the reason and its objects, are not identical, unless the object be the reason itself; but even here we must distinguish between the objective nature of the reason as a being and the laws of thought according to which it becomes conscious of itself. The matter of philosophy is not, therefore, the ideas of the human reason, but being as it is in itself, reproduced under the formative influence of these ideas.

3. The legitimate *union* of form and matter. This depends upon a correspondence or reciprocity of subject and object, or of the laws of thinking and the laws of being. To know a thing according to the laws of thought is to know it also according to its own nature.

Philosophy is, therefore, being as it is in itself, or the necessity and generality of being, existing under a form which is determined by the ideas and laws of the human reason.

CHAPTER IV.

A TRUE SYSTEM OF PHILOSOPHY.

§ 23.

THE CONDITIONS OF TRUE PHILOSOPHY.

THE nature of philosophy is the nature of *true* philosophy; though, strictly speaking, there is no room for the distinction between true and false philosophy. For philosophy is true philosophy, in the nature of the case. If it be not true as to form and matter, it cannot properly be called philosophy; it is only a system of vain speculation, or philosophy "falsely so called." Yet as there are many false systems of speculation which pretend to be true philosophy, it is necessary and proper to endeavor to draw the line of distinction between a true and a false system.

As philosophy is the product of thinking, and thinking is the activity of reason, it follows that

a true system of philosophy hinges on the true position of the human reason. As the reason sustains a relation to itself, to the world, and to God, and has in consequence a fixed relative position in the objective order of the universe, it must occupy a place corresponding to this threefold relation in a true subjective system of thinking. To determine *the true position of the human reason* becomes, therefore, the fundamental problem in philosophy. This resolves itself into three primary questions :

1. What is the first principle of philosophical thinking?

2. What is a true conception of the human reason?

3. And what is the relation of reason to the outer world, or of reason to its objects?

A true system of philosophy presupposes a correct answer to these three questions, each answer being a necessary condition upon which the evolution of truth by the reason depends.

As the first two questions are very intimately related, we will consider them together. The third we will consider separately. For the sake of clearness we shall therefore conduct the discussion of the subject of the present chapter in

two sections; the first section treating of the first two conditions, and the second section, of the third condition of true philosophy.

SECTION I.

THE PRINCIPLE OF PHILOSOPHY AND THE POSITION OF THE REASON.

§ 24.

WHAT IS THE FIRST PRINCIPLE OF PHILOSOPHY?

The first principle of philosophy is not the human reason; for it is not the common centre or ultimate ground of the universal whole. Though a scientific knowledge of the universe to the degree that it is attainable, is its own legitimate product, as the acorn is the product of the oak, yet, objectively considered, the reason is but a part of the universal whole; it is a subordinate order of created being; and must, therefore, to be true to itself and its relations, have a conception of itself corresponding to its objective subordinate relation to the absolute ground of all things. This absolute ground is God, the Crea-

tor alike of the outer world and of the human reason.

God is, therefore, the first principle of philosophy, whom the reason must know in order to a true scientific knowledge both of itself and of all other orders of being. For it can be laid down as an axiom, that what is the ultimate ground of the objective order of things must constitute the first principle in a valid subjective system. Otherwise any system of philosophy is destitute of truth; it is nothing but a web of abstract speculation woven by an arbitrary imagination, and producing more confusion than unthinking ignorance itself.

§ 25.

WHAT IS THE RELATIVE POSITION OF THE REASON?

An answer to the first question, prepares the way for an answer to the second.

As the author of the human reason is God, the reason must be referred to God as the ground from which it derives its being and attributes. It cannot be known from itself; no more than a tree can be known without a conception of the

vegetable kingdom. A true idea of the reason depends accordingly upon a true idea of God. The nature of philosophy itself drives us to this conclusion. Philosophy proceeding according to the laws of thinking, always refers a species to its genus, an effect to its cause, a consequence to its ground, and determines a conception of the latter by that of the former. In reflecting on itself the reason must proceed according to the same order. It is a particular species of created spirit. God is the infinite creative Spirit. On the same principle, therefore, that reason refers a particular to a general and a consequence to a ground, must it refer itself to God; and on the same principle that a conception of a vegetable is conditional to a conception of a tree, or a conception of a ground to that of its consequence, is a true idea of God, the Creator, conditional to a true idea of the human reason.

To admit the principles of a sound Theism, and yet seek to evolve a true idea of reason from itself only, and refuse to view it in the light of its absolute ground, is in effect to make *it*, instead of God, the common centre of all orders of being and thus violate the very laws of thinking, conformity to which all philosophy presupposes.

§ 26.

THE FIRST TWO CONDITIONS IN THEIR RELATION TO
PHILOSOPHY.

Taking a true idea of God as the first principle, and determining the idea of the reason and of its relative position by the idea of God, a true system of philosophy becomes possible. The ultimate ground of the reason and of the universe, is then the point of observation from which the reason views itself, the outer world, and God. Reason is held consciously in its normal subordinate relation to God, who is the first principle of philosophy. In other words, the position which God holds and the human reason holds in idea, corresponds to the position which God and the human reason hold respectively in reality. Reason may then go forth on its high mission, roaming through the illimitable regions of objective existence, and everywhere, to the extent that it can answer its inquiries, come into possession of the truth. The true philosopher—to take an apt illustration—is like the astronomer who, contrary to the apparent position of the earth, believes the sun to be the centre of the planetary system; the

real centre of the objective order of nature becomes the point of departure in the science of nature, the earth being regarded but as a subordinate orb, upon which the light of the sun shines directly and its rays are reflected also from innumerable other worlds. Although his abode is upon the earth, yet as he takes the sun to be the principle of his system and knows the relative position of the earth, he can make correct observations upon the heavens from a subordinate sphere and construct a true system of astronomy. He knows the true relative position of the earth because he knows the central relation of the sun. Astronomy, or a true science of the heavens, then becomes possible.

A true system of philosophy depends, therefore, upon a correct Theology. The reason must know God before, properly speaking, it can know itself or the outer world scientifically. If it does not know God or has a false idea of God, it cannot know itself truly, nor can it form a correct conception of its relative position. A false system of philosophy follows as a necessary consequence. Taking itself as the centre of its system of thinking, it stands in a false relation to God and to all other objects of thought. Its

views are distorted. It looks at everything under a false aspect. The system may proceed strictly according to the laws of thinking; it may be logical throughout; yet the final results will be false, because the point of observation is false.

A false philosopher is like the man who believes the earth, the orb on which he lives, to be the centre of a system of worlds, because the sun, moon, and stars apparently revolve around it. With this idea, as the principle of his system, he may make careful observations upon the heavens and conduct his calculations strictly according to the laws of Mathematics, yet all his deductions, his views of his own position, of the position of the sun, the real centre of things, and his views of the relative position of every star, must be false. To say that the earth must be the point of observation and the centre of a rational system because it is the place of his actual abode, passes for nothing with every scientific naturalist. An observer cannot know the relative position of the earth, just because he does not know nor acknowledge the central relation of the sun. The parallel holds good throughout. To say that because philosophy is the product of thinking, the reason must ignore the central relation of God and start

with its own hypotheses of itself and its objects, thus making itself a subordinate order of existence, the centre of its system of ratiocination, can possess no force for a consistent scientific theist; for it involves the very absurdity with which the man is chargeable who presumes to make scientific observations upon the heavens, on the assumption that the earth, and not the sun, is the centre of the planetary system.

§ 27.

THE RELATION OF PHILOSOPHY TO SUPERNATURAL
REVELATION.

It is necessary to advance a step further. Another question arises: How shall we obtain a true idea of God? The question demands a solution; for it involves the *sine qua non* of philosophy. Nature or the outer world is indeed a revelation of God; but the history of man proves incontrovertibly, that, left to his own powers, he derives a false conception of the Supreme Being from his observations upon nature. Nature does not suffice.

The human reason, or man himself, is a higher revelation than nature; but we have already shown how, on the principle of a theistic view of the universe, the nature of philosophy itself demands a reference of reason to its original ground; the reason cannot even form a correct conception of reason but in the light of a true idea of God; much less can it form a true idea of God, the Infinite Creator, from itself, that is, from its imperfect conception of a finite spirit, or from the reflections of its own uncertain, flickering light.

In addition to this, we must make due account of the presence of moral evil or sin, which has enfeebled, darkened, and disordered the whole human constitution. However clear and consistent the intuitions of man were in his original and normal condition, they are now nothing more than the confused utterances of a being struggling in his weakness to extricate himself from painful contradiction, and reaching out unceasingly to lay hold of the absolute Good, but always grasping the shadow instead of the substance. That there *is* a God sounds continually from the profoundest depths of human rationality; but to the question: What is God? there

comes forth no satisfactory response. The human reason was originally like a quiet, placid lake, that reflects a beautiful and true image of the sun ; but now, lashed into foam by the winds and casting up mire and dirt from beneath, the reflections are indeed innumerable, but all are distorted and delusive.

Hence we assume the necessity of a revelation different from and higher than that which nature and man afford—the necessity of a supernatural revelation in order to a true idea of God ; not only the necessity, but without further argument, we assume the fact also. There is a supernatural revelation, exhibiting the divine, the human, and the natural, each as it really is in itself, and all in their objective reciprocal relations to each other. That revelation is at hand in the person of Jesus Christ. The Christian Religion is a system of various facts constituting one harmonious whole ; but the meaning of all, from the creation down to the resurrection, and the final consummation of all things, culminates in Himself. Very God and very man in one person, He reveals a true idea of God—of His attributes and works ; and a true idea of man—of his constitution, his fall, his wants, his capacities, and his relations to him-

self, to the world, and to God. A correct conception of creation—of the material and immaterial—depends on a true idea of God and His infinite attributes. Christ as God reveals God; God as the Creator; and in consequence, also, the relation of spirit to matter and of matter to spirit. Christ as man reveals man, as to body, soul, and spirit; reveals him as he was, originally right, pure, and in possession of truth, capable of knowing as he was known; and reveals him as he is now, depraved and ignorant, yet salvable, that is, susceptible, through Him, of being restored to a position in which he can attain to true and boundless wisdom. In Him, as in a polished mirror, man may see man, may see himself, in all his normal objective relations. It is in Christ, therefore, that the true idea of God and of man appears to the eagle eye of reason. Christ becomes, accordingly, the first principle of all legitimate metaphysical inquiry. A correct Theology depends upon a sound Christology.

§ 28.

RECAPITULATION OF THE ARGUMENT.

To sum up the results of the argument: A true system of philosophy must take the absolute

ground of the objective universe as its principle. The origin of the universal whole is the true point of departure in a subjective system. As that absolute ground is God, reason must possess a true idea of God; and as it is the reason which produces philosophy, the reason must possess a true idea of its relative position in the universal whole; both ideas being essential to the validity of the final results of inductive or deductive ratiocination. A true idea of God is not derived from nature nor evolved out of man's being; nor is a true idea of the reason and its relations developed from the reason; but the truth in regard to both is brought to light alone in Jesus Christ, who is the organic union of God and man, and therefore, the most perfect revelation both of the human reason or of humanity, and of God, the absolute ground of all things.

It follows that valid metaphysical inquiry depends upon a belief in and a knowledge of Christ; that is, if the human reason start with the idea of God, and of itself, which is revealed by and in Christ, it becomes possible, so far forth at least, to unfold a true philosophy. If this idea be ignored or rejected, the first essential conditions are wanting, and the very possibility of a

true philosophy is out of the question. No logically consistent metaphysician can take any position short of this who believes that Jesus Christ possesses sufficient claims to be regarded as the Author of the only true Religion, as the Son of God, the Word made flesh.

SECTION II.

THE RELATION OF THE REASON TO THE OUTER
WORLD, OR OF SUBJECT AND OBJECT.

§ 29.

FOURFOLD SOLUTION OF THE PHILOSOPHICAL PROBLEM.

What is the relation of the human reason to the outer world, or of the subject to the object of thought? A correct answer to this question constitutes the *third* essential condition of a true system of philosophy.

The history of philosophy has developed two radical, and mutually exclusive methods, by which the problem has been sought to be solved. These may be united and disappear in a third; or both may be acknowledged but not united, and give rise to a fourth. The history of philo-

sophy has thus developed a fourfold solution of the general question.

Realism.

The first solution is Realism or Sensationalism. The outer or material world addresses the senses, and these convey their impressions to the mind. The reason receives its ideas, not from within, but from without. We know those things accordingly with which we are brought into contact by the senses. The ground or source of knowledge is sensation, or a sensible experience of objects.

This is the theory. The outward world is exalted beyond measure and the human reason is depressed. Wrong is done in two directions. The material object is assigned a place that is too high, and the thinking subject a place that is too low. There is a false subordination of the human reason as a thinking subject to the outer world as a real object.

The principle of Realism is susceptible of various modifications according to the degree that reason is falsely subordinated; and we get as many varying systems of philosophy, all embodying, however, the same principle. The false sub-

ordination may be so slight as to render a system of Realism almost reconcilable with the truth; or it may be so great as to negate any essential difference between spirit and matter; and we get a gross form of materialism—a result to which Hobbes developed the methodology of Bacon.

Idealism.

The second is Idealism. The ground or source of knowledge is the reason itself. Our knowledge of things is derived from within, not from without; that is, from intuitive ideas. These ideas only are certainly known; and become the principle and measure of knowledge. Thus outward objects do not determine what is known of them, but they can be known only according to the *a priori* ideas and judgments of the reason.

The subject is thus unduly exalted and the object unduly depressed. Idealism involves, accordingly, a false subordination of the real object to the thinking subject. The reverse of Realism. Wrong is done to both; for the reason demands the object as the material of knowledge, and the object must be known according to its own nature in order to be subordinate to its true end.

Idealism varies according to the degree in

which the real object is subordinated in a false way to the thinking subject. It may admit the reality of the object, but determine the knowledge of it by the *a priori* ideas of the reason; or it may subordinate the object to such a degree as to deny the reality of its existence altogether.

Absolutism.

The third is Absolutism, and becomes Pantheism when developed to its ultimate logical results. From a false subordination of the thinking subject to the real object, philosophy reacts to a false subordination of the object to the subject; but as both subject and object are primary facts of consciousness, each view is extreme and cannot sustain itself to the exclusion of the other. As it is the innate tendency of the reason to reduce multiplicity to unity, both exclusive systems give way to a third, which seeks to unite subject and object in an absolute principle. Subject and object or the reason and the outward world are taken to be identical as to their essence, but different as to form of being. They are but different manifestations of one principle.

Absolutism does violence to the thinking subject and to the real object. Both are subordi-

nated in a false way to their absolute ground. In order to avoid a false subordination of either one to the other, it identifies them with each other and with their common ground, and thus destroys their essential difference.

Referring all forms of existence to one absolute principle by which they are pervaded and determined, Absolutism becomes Pantheism. The absolute principle is God. The various parts of the universe may be regarded as so many members of the Divine Being, and we have what may be called gross Pantheism. Or a distinction is made between the material, outward parts of the Universe, and the general life-principle that moves in and sustains the universal whole. This life-principle is then regarded as God, and we get speculative Pantheism.

Dualism.

The fourth is Dualism. There is no false subordination of subject to object as in Realism, or of object to subject as in Idealism, nor are subject and object identified and subordinated in a false way to an absolute principle as in Absolutism or Pantheism; but there is an undue elevation both of subject and object. Their essential

difference is magnified, and the necessary internal connection subsisting between them disappears. Subject and object are held asunder as being in irreconcilable opposition. Each is in consequence referred to a principle of its own. There are, therefore, two opposing absolute principles. The reason derives its ideas from itself; and it admits the object to be, but not to be a source of true knowledge. As there is no internal and necessary connection but an irreconcilable opposition between them, the influence of the outward object is unfavorable to pure and true scientific knowledge. Hence the reason strives to free itself from the influence of the outer world, and to fall back upon the resources of its own nature. Knowledge becomes pure and true in proportion as this separation is widened.

Dualism exists under various modifications; but it does not fall in with our plan to trace them out. We have only given the general principle of the system.

Dualism resembles Idealism; because both systems derive true ideas from the human reason, yet they differ widely in their relations to the outer world. Idealism begins with a subordination and ends in an utter negation of the outer

world. Dualism holds the reality of the outer world, but maintains the necessary antagonism of it to the pure activity of reason, and therefore regards its influence to be unfavorable to truth. Hence a conflict ensues which intensifies the existence both of the thinking subject and the real object.

§ 30.

MODIFICATIONS OF THE FOUR SYSTEMS.

When any one of these four systems of thinking is held with logical consistency by itself it of course excludes all the rest; yet if developed to its last results it passes over into the opposite theory. The extremes meet. There is a certain affinity in opposite errors corresponding to the unity of truth. This affinity arises from the relation of error to truth. Truth is positive; error is negative. There is but *one* truth; but it possesses different elements and exists in various relations, all of which, however, make one harmonious whole. Each element or relation presents an aspect to the human reason under which it may be viewed. A valid philosophy views truth

under all its aspects and combines them into an ideal unity. But each aspect of truth may also be viewed by itself; and when viewed by itself it becomes the point of departure for an erroneous system of thought. The different false systems which thus arise, are opposed to each other, yet they are connected by the secret bond of truth which underlies them. Their connection is a distortion of the beautiful homogeneity of the different elements of truth; yet though a distortion it is real; and because real no system of error can long stand alone, but will in the progress of its development become associated with a collateral one, or run into its opposite. Two or more systems may also exist in forced or mechanical conjunction, and produce an eclectic or mongrel philosophy.

Varying systems may also be built upon the same one-sided view of the truth; the one including certain non-essential elements, and the other excluding them. Or the same modifying non-essential elements may be embodied in radically different systems. Hence to understand the precise character of a false system, we must know both the fundamental principle upon which it is based and the accidental elements which it com-

bines. Yet, however numerous these modifications of false systems of philosophy may be, they are all reducible to one of the four fundamental principles which we have stated. No other false fundamental principle is possible.

§ 31.

CRITICISM OF THE FOUR SYSTEMS.

These fundamental principles rest each on an essential truth; but the truth is held from a false point of observation and in false relations. An essential truth held in conjunction with radical error, becomes a false principle which vitiates the whole system built upon it.

Realism holds the reality of the object or of the outer world: this is an essential truth; but subordinating the thinking subject to the outer world in a wrong way, the truth becomes a false principle.

Idealism, on the contrary, holds the reason to be the ground and source of knowledge: another essential truth; but subordinating the object to it and determining the existence and nature of the object only by the intuitive ideas of the reason, this truth likewise becomes a false principle.

So with Absolutism. That subject and object both exist, and that there is a necessary internal connection between them, is essentially true; but that they are only different homogeneous manifestations of an absolute principle to which they are reducible, is radically false.

The truth and falsity of Dualism are just the reverse. It holds what Absolutism or Pantheism denies: the intrinsic difference, as to essence, of subject and object, or of the reason and the outer world. This is true. But it holds, too, what is false: the direct antagonism of the pure reason to the outer world, which does violence to their internal connection, and necessitates an ultimate reference of subject and object to two absolute eternal principles.

Each system starts thus in an hypothesis that combines essential truth with radical error.

§ 32.

CORRESPONDENCE OF CHRISTOLOGY TO PHILOSOPHY.

These different systems of false philosophy correspond to as many systems of error in the sphere of Christology. A false philosophy and a false

Christology are concentric circles. Both turn upon the same one-sided method of thinking; which, whether applied to the reason, the world, or Christ, leads to results intrinsically the same. This position we propose to establish.

We shall endeavor to trace the correspondence between the erroneous systems of Christology and those of philosophy. In this way we design to exhibit more clearly the nature of the method of thinking which is common to the fundamental systems of false philosophy; to define more accurately the conditions which must be met in a true solution of the problem under discussion; and to determine the nature and necessity of the principle upon which that solution rests. Whilst it is only in the light of truth that error can be properly understood; yet error, on the other hand, serves by its contradiction to bring out and define the opposite truth.

§ 33.

FOURFOLD SOLUTION OF THE CHRISTOLOGICAL PROBLEM.

Christology has to do with the question: What is the relation of the divine to the human nature

in the person of Christ? The efforts of the reason to solve the question scientifically, have given rise to two primary false systems of Christology, the one starting with the human and the other with the divine nature as its principle. From these two mutually exclusive systems there is a twofold reaction. In the one case, the reason resolves the two natures into one, and thus identifies them; in the other, it asserts the reality of both, but holds them in mere juxtaposition. The history of Theology has, accordingly, developed four fundamental systems of false Christology.

Ebionism.

The first system of false Christology is Ebionism. It lays stress on the outward, the visible and tangible, upon that which addresses the senses and the common understanding of men, and conforms to the natural order of things; but undervalues the invisible, incomprehensible, and supernatural, which is accessible only to faith. Christ is a real man both as to body and soul; but he is not the true God. His personality is human and only human.

Ebionism is susceptible of various modifications according to the degree in which the divine is

subordinated to the human nature of Christ; and is known by as many different names, for example, as Arianism, Socinianism, and Unitarianism. It may depress the divine to such a degree as to eliminate it altogether; or it may admit the presence and power of a supernatural influence in so high a sense that the admission seems to be almost equivalent to an affirmation of His proper Godhead. But the principle which underlies each modification is the same: an undue subordination of the divine to the human, or a false position of the human nature in its relation to the divine.

Ebionism, in Theology, corresponds to Realism in philosophy. The same method of thinking pervades both. They are in reality the same system, varying only according to the nature of the object upon which the system lays hold.

Gnosticism.

The second is Gnosticism—a method of thinking that has given rise to a great variety of particular systems of philosophy and theology, all of which, however, are reducible to one common principle, namely, a false subordination of the natural to the supernatural, or of the human to

the divine. The supernatural being of Christ is His only true and real being. He may be regarded as belonging to an order of celestial existence which is inferior only to the absolute, self-existent Source of all things: or He may be a being who is co-equal and co-eternal with God, the Father. In either case, it is the supernatural, not the natural or human, which constitutes the proper being of Jesus Christ. His human nature is, therefore, not essential to His constitution, but an accidental or temporary medium of His work on earth; or it is an expedient adopted to secure the ends of God's moral government; or it is no real existence at all, but only a transient appearance or phantasmagorial accommodation to the human senses. Whichever view may be taken of the human nature, does not matter; its relation to the divine nature is the same in principle, which is, that the human nature is not intrinsically necessary to the reality of His being or the validity of His work. The human is depressed and the divine is elevated in such a sense as to do violence to the reality of the human.

Gnosticism corresponds to Idealism. The same principle working out the same results in two different spheres of thought: a false subordination

of the object to the subject—in the one case, of the outer world to the human reason, in the other, of the humanity to the divinity of Christ. Both systems turn on one pivot.

Eutycheanism.

The third is Eutycheanism—from *Eutyches*, an abbot at Constantinople, who became the historical organ of the theory, in A. D. 448. Neither the human nature nor the divine nature as such constitutes the true being of Christ; but the incarnate Word, who is the blending or flowing together of two natures into one. Hence the essential attributes of proper humanity are not to be distinguished in Him from the essential attributes of the Godhead. Christ possesses but one nature made up of two originally different, but now confused elements, the divine, in some sense, assimilating the human to itself.

This Christological method of thought can be traced through the previous and subsequent history of the Church. It comes to view under one or another aspect, and receives different appellations, according to circumstances. With its modifications, however, we have nothing to do here. We are concerned only with the general principle

of Eutycheanism, which is identical with that of Absolutism or Pantheism in philosophy. Eutycheanism and Absolutism are each a reaction from the violence done by the two primary false systems in Christology and philosophy to a necessary category of thought which demands a synthesis of the two natures, or of subject and object. But the reaction instead of holding the two natures or elements in a connection that is consistent with the integrity of both, destroys their essential difference, and results in a merging or commingling of both elements into one essence.

Nestorianism.

The fourth is Nestorianism—from *Nestorius*, a bishop of Constantinople during the first half of the fifth century, whose name, whether justly or not, has become identified with dualistic Christology. It is necessary to maintain the integrity of the human nature in Christ and avoid the commingling of attributes. Hence stress is laid, not on the connection but on the essential difference of the two natures. The human and divine being both distinct and separate are not in organic union, but in outward conjunction. The distinct attributes of both are not referable to a common

centre, but the divine attributes are referable to the divine nature and the human attributes to the human nature. Thus the two natures stand asunder but co-operate in the work of redemption.

The method of thinking in Christology denoted by Nestorianism is the counterpart of Dualism in philosophy. As subject and object have each an independent existence in the one, so have the divine and human in the other. Nestorianism and Dualism are each a reaction from the violence done by the Eutychean and Pantheistic tendencies to a necessary category of thought, which demands a proper analysis of the two natures, or of subject and object. Both magnify the essential difference of integral elements and set aside their inward necessary connection.

§ 34.

THE PHILOSOPHICAL AND CHRISTOLOGICAL SYSTEMS COMPARED.

All false systems of Christology are reducible to these four—to Ebionism, Gnosticism, Eutycheanism, and Nestorianism. These are funda-

mental. But as there is a certain affinity in opposite errors, each one, like its corresponding system in philosophy, generally exists in combination with some elements belonging to another. Thus Ebionism and Gnosticism may each be associated with Nestorian tendencies; as Realism and Idealism may each be associated with Dualistic tendencies.

Any one system may also pass over into its opposite. Ebionism may pass over into Gnosticism; and *vice versa*. The full development of the one causes a reaction in favor of the other. So does the extreme of Realism become the transition to Idealism; for they are the opposite poles of the same error. The wire of thought bends in the process until the ends meet in a circle. So, too, of the other systems. The last consequences of Eutycheanism call forth a reaction in favor of Nestorianism; and a full-grown Absolutism or Pantheism may awaken a tendency towards Dualism. The reason cannot rest long in any position that ignores any primary fact or postulate of consciousness or of Revelation.

There is, however, a more important resemblance between the philosophical and the Christological systems. Of this resemblance we have

spoken already, but we wish to trace it more definitely.

Realism makes the outer world the source of knowledge through sensation, and does violence to the higher claims of the reason. Ebionism takes the humanity of Christ as its basis, and does violence to the higher claims of His divinity. Thus both systems start in the lower, the outward, the sensible element, and set aside the reality of the higher, the inward, the supersensible or ideal element—the element that is not accessible to the senses or to the common understanding. Realism and Ebionism are but one method of thought—a fact that history frequently illustrates. Realistic or sensational philosophy is generally associated with Ebionitic or Unitarian tendencies in Theology. In virtue of the law of reaction, however, one extreme system in philosophy may coexist, not with the corresponding, but also with the opposite system in Theology. A realistic or sensational philosophy, under this view, is favorable to Ebionism or to Gnosticism—to low views of the divinity, or to low views of the humanity of Christ.

Idealism makes the reason the only source of knowledge, and denies the determining influence,

or the reality, of the outer world. Gnosticism attaches reality and virtue only to the divine nature of Christ, and ignores or denies the reality of his human nature. Both systems find their principle in the higher, the inward, the ideal or supersensible element, and set aside the reality of the lower, the outward, the finite, and sensible. Idealism and Gnosticism are but one method of thought. Of this fact the history of philosophy and Theology likewise offers numerous illustrations.

Absolutism or Pantheism resolves the reason and the outer world into one principle, and ignores their essential difference. Eutycheanism blends the human nature with the divine—the divine nature is the proper being of Christ; and denies an essential difference of attributes. Both systems identify the lower and the higher, the outward and the inward, the sensible and the supersensible or ideal—identify that which is, and that which is not, accessible to sense and the understanding; and ignore or set aside the essential difference between them. Absolutism and Eutycheanism rest in one method of thought.

Dualism admits the reality of the reason and the outer world as determining forces, but holds

them in irreconcilable opposition; and denies their necessary connection. Nestorianism admits the reality of both natures in Christ, but holds them asunder; and in consequence denies their real union. Both systems assume the antagonism of the outward and the inward, of the sensible and the supersensible or ideal—the antagonism of that which is, and that which is not, accessible to the understanding; and do violence to the necessary connection subsisting between them. Dualism and Nestorianism are the exponents of but one method of thought.

Here we have apparently four methods of thought underlying four sets of parallel systems. But upon a closer view we find that these methods possess common characteristics, and are therefore not essentially different. They are all one-sided. Each method lays hold of one fact, or postulate, and suppresses another which is no less certain and real; in philosophy it is a fact or a postulate, of consciousness, and in Christology, a fact or a postulate, of revelation. And they are all arbitrary. Each method is based not upon the whole constitution of the objective order of things with which it is concerned, but springs from the human will as influenced by education,

by the spirit or reactionary tendency of the age, or by accidental circumstances.

These four false methods are, therefore, at bottom but one false method. The method of thought which underlies the fundamental systems of false philosophy, is identical with the method of thought which underlies the fundamental systems of false Christology. The mutually exclusive philosophical systems and the parallel Christological systems are all of them but so many different expressions of one error.

It is but a postulate to affirm, on the other hand, that a *sound* Christology and a *sound* philosophy are grounded in the same method of thinking. The Christological problem and the philosophical problem are but one problem.

§ 35.

THE CONDITIONS OF THE TRUE SOLUTION.

The philosophical problem under discussion—the relation of the human reason to the outer world, or of the subject to the object of thought—includes two primary facts of consciousness, namely, the reality of the reason and the reality

of the outer world. The reason *is*, and the world *is*. From these two primary facts two others follow as postulates, namely, the necessary inward connection, and the essential difference between the reason and the outer world. The constitution of the reason corresponds to the constitution of the world; but the distinctive attributes of the reason cannot be predicated of the outer world, and the distinctive attributes of the outer world cannot be predicated of the reason. They are connected but different entities.

There are, accordingly, four essential conditions which must be met by a true solution of the philosophical problem:

1. A true solution is required to hold the human reason, or the subjective, as a veritable entity, possessing determinative force in itself.

2. It is required to hold the outer world, or the objective universal whole, as a veritable entity, possessing, like the reason, determinative force in itself.

3. It is required to hold the reason and the outer world, subject and object, as two distinct orders of being. They are not identical.

4. It is required to hold the reason and the outer world as inwardly and necessarily con-

nected. They are not in irreconcilable antagonism.

The Christological problem—the relation of the divine to the human nature in the person of Christ—includes two primary facts of supernatural revelation, namely, the reality of the human and the reality of the divine nature of Christ. Christ is very man and very God. From these two primary facts two others follow as postulates, namely, the necessary inward connection and the essential difference between the two natures. The constitution of the humanity is created in the likeness of the Godhead; but the distinctive attributes of the Godhead cannot be predicated of the humanity, and the distinctive attributes of the humanity cannot be predicated of the Godhead. They are inwardly connected, but the one remains the creature and the other the Creator.

Hence there are also four essential conditions which must be met by a true solution of the Christological problem:

1. A true solution is required to hold the human nature of Christ as a reality—as possessing the peculiar attributes of humanity.
2. It is required to hold the divine nature as a reality—as being coessential and coequal with

the Father—as possessing the proper attributes of the Godhead.

3. It is required to hold the two natures as two different orders of being, the one as the finite and relative, and the other as the infinite and absolute. There may be no confusion of essence.

4. It is required to hold the two natures in inward connection and harmony. There can be no contradiction between them.

Here we have two series of conditions which are to be met by the required solution, the one by the solution of the philosophical and the other by the solution of the Christological problem. On the basis, however, of the comparison instituted in § 34, these two series are reducible to one.

1. The outer world is to philosophy what the human nature of Christ is to Christology. The required solutions must, therefore, be consistent with the reality of the lower, the outward, the sensible existence.

2. The human reason, with its ideas and laws of thought, is to philosophy what the divine nature, with its infinite perfections, is to Christology. The required solutions must therefore be

consistent with the reality of the higher, the inward, the supersensible existence.

3. The difference between the outer world and the reason is to philosophy what the difference between the humanity and the Godhead of Christ is to Christology. The required solutions must therefore be consistent with the essential difference between two distinct orders of existence, the lower and the higher, the outward and the inward, the sensible and the supersensible.

4. The connection between the outer world and the reason is to philosophy what the connection between the two natures of Christ is to Christology. The required solutions must therefore be consistent with the internal harmony between two different orders of existence, the lower and the higher, the outward and the inward, the sensible and the supersensible.

The necessary conditions which must be met by a true solution of the philosophical problem are thus identical, scientifically considered, with those which must be met by the solution of the Christological problem. But these four different conditions common to both questions are not separable conditions, or externally related; they imply or lie in each other; any one cannot exist

where the others do not; they are, therefore, reducible to one threefold condition, which may be stated in a single expression: The solution of the twofold problem must be consistent with the reality, the connection, and the difference of the sensible and the supersensible order of existence, or of that which is, and that which is not, accessible to sense and the understanding.

Summing up the results of the argument, we find that the different fundamental systems of false philosophy and false Christology are grounded in *one* method of thought; that the philosophical and the Christological problem are but *one* problem; and that the conditions which must be met by the solution of this one problem under its two aspects is but *one* threefold condition. Two things follow by necessary consequence: the true solution of the philosophical and the true solution of the Christological problem are but *one solution*; and the solution of the problem under its two aspects is grounded in but *one principle*.

§ 36.

THE TRUE SOLUTION OF THE PROBLEM.

The question: What is the relation of the

divine to the human nature in the person of Christ? is therefore the same, in principle, as the question: What is the relation of the reason to the outer world, or of the subject to the object of thought? But the terms of the first are broader and more comprehensive than those of the second. Considering the Christological question scientifically, the divine nature occupies in it the place of the subject in the philosophical question, and the human nature the place of the object. The divine nature is the absolute reason, the highest subject of which pure thought can be predicated; it apprehends and assumes the human. The human, or humanity, is the sensuo-rational object, the head of outward objectivity or of the sensible creation, in which the import or meaning of all lower orders of the sensible creation reach their highest form of expression. It is apprehended by and assumed into union with the divine. The terms of the Christological question are therefore most comprehensive.

The terms of the philosophical question are limited. The human reason is a finite, created subject; and the outer world is but a part of that order of sensible objects to which man as the highest form of its expression belongs. The terms

of the philosophical question are therefore less comprehensive. They are both particular.

Hence the relation of the first to the second question is that of a general to a particular. The solution of the philosophical is concluded under that of the Christological problem. It is a sound Christology, therefore, that becomes the principle upon which the profound and difficult problem in philosophy must and can alone be solved.

Solution of the Christological Problem.

A true solution of the Christological problem has been wrought out scientifically, and is to be viewed as the result of the unavoidable and long-continued conflict of truth with error in the history of the Church. We will endeavor to state it in a few words both positively and negatively.

The relation of the divine to the human nature of Christ is neither Ebionitic nor Gnostic, neither Eutychean nor Nestorian, but personal and organic.

Christ has two natures, both real entities, neither one merely ideal or imaginary, the one truly divine the other truly human, each distinct from the other but not separate nor separable; but the divine apprehends and assumes the

human, without mixture or change, into union with itself, thus sanctifying it, and giving it a higher form of existence. Related thus, not by a force holding them together from without, but by the supernatural power of the Holy Ghost working from within, the two natures constitute but *one* personality.

Each nature holds its due relative position. No wrong is done in this respect to either. There is no false subordination of the divine to the human, as in Ebionism, nor of the human to the divine, as in Gnosticism. Yet there is a real assumption of the human by the divine, so that the two become one whole. *The Word was made flesh.* Of one personality the unmixed peculiar attributes of humanity and the peculiar attributes of divinity are predicable with equal propriety.

Nor is any wrong done to their essential difference. The human is not absorbed by or transmuted into the divine, nor does their union form a being of whom the proper attributes of humanity cannot be predicated, as in Eutycheanism. The human is really and only human, and the divine is really and only divine. Each nature preserves its integrity.

On the other hand, however, the two natures

are not sundered in violation of their necessary inward connection, as in Nestorianism; but, in virtue of a new creation, they exist as the constitutive parts of one person. The person of Christ is neither a singleness nor a composition, but an organic unity. A sound Christology excludes the errors, and includes the truth, of every false system, on the basis of a new and higher principle.

Here, then, we find the solution of the philosophical problem.

Solution of the Philosophical Problem.

The relation of the divine to the human nature in the person of Christ exhibits the relation of the human reason to the outer world. The reason and the world are distinct entities, belonging each to a peculiar order of existence and possessing peculiar attributes; the one spiritual, the other real; the one the subject, the other the object; but reciprocally dependent, each entity demanding the other for its own completion; the one thinking, the other thought of; the one knowing according to its intuitive ideas and laws, the other known according to its objective nature; and constituting in scientific knowledge or philo-

sophy an organic union, in which the reason and the world are neither sundered nor identified, but each continues to be itself truly, whilst in virtue of their necessary reciprocal connection they form one complete whole.

This general view includes several particulars. The reason is not subordinated to the outer world, as in Realism, but holds its proper and relatively independent position as the thinking subject, deriving its forms or categories of knowledge and its laws of thought from itself.

The outer world is not subordinated to the reason, as in Idealism, but maintains the reality of its objective existence. Though apprehended under the *a priori* ideas of the reason and shaped by them in the sphere of thought, it is what it is independently of these ideas; and as such determines the matter or contents of true knowledge.

The human reason and the outer world are not resolved into one principle of which they are but two different forms of development, as in Absolutism or Pantheism; but they are, as to their essence, intrinsically different, the thinking subject and the real object each possessing essential attributes which the other does not.

Nor yet are the reason and the world held

asunder antagonistically, as in Dualism ; but there is an internal connection subsisting between them, in virtue of which the reason demands the outer world as the matter of its knowledge, and the outer world is susceptible of assuming form in the sphere of thought according to the ideas and laws of reason.

The source of knowledge accordingly is neither the human reason to the exclusion of the outer world, nor the outer world to the exclusion of the human reason. But the actual source is found, under one view, in both ; in the reason as evolving the categories of thought out of itself and determining the proper form of knowledge ; in the outer world as the object corresponding in its nature to the categories of thought and determining the matter of knowledge ; in both as reciprocally necessary and complementary. Or, we may say, the source is in the human reason sustaining a true and actual relation to its objects ; the one being the formative principle and internal condition, and the other, the necessary material and external condition of scientific knowledge.

§ 37.

THE SOLUTION OF THE PROBLEM ILLUSTRATED.

As there is an internal correspondence between sensuo-rational life and the constitution of the lower spheres of existence, we can find a forcible illustration of the true relation of the reason to the outer world, in the human body or in the animal kingdom. We will refer first to an analogy in the human body.

Seeing presupposes the eye which sees and the light which is seen; the one being the subject and the other the object of sight. The construction and capacities of the eye are nicely adjusted to the light, just as the constitution and laws of the reason correspond to the outer world; and the nature of light is perfectly adapted to the receptivity and form of the eye, just as the material world is adapted to the intuitions and laws of the reason. The eye cannot see without the light, and the light cannot be seen without the eye; just as the reason cannot know without an object, and the object could not be known if there were no reason. Sight originates, therefore, in the eye sustaining its true actual relation to the light; and must be regarded as the legitimate

product of two factors, the one being the source and the other the material and outward condition of vision.

So, too, with the bee. The little insect builds its comb with mathematical precision, fills the cells with honey, and seals them hermetically. The honeycomb presupposes two things: the mysterious constitution and laws of bee-life, and the nectar and farina of flowers which the bee seeks instinctively and appropriates to itself; the one unconsciously evolving the plan of the comb out of itself and determining its form according to subjective laws, and the other constituting the objective material which the bee reproduces as the matter of the comb. The instinct of the bee, or its innate impulse, demands the nectar and farina as its objects; without them its wonderful powers would consume themselves. The nature of the nectar and farina, on the other hand, is preadapted to the wants of the bee and susceptible of being wrought into a new form determined altogether by a higher constitution; but, without the bee, these susceptibilities of the nectar and farina would not be unfolded and transformed into a beautiful comb. The comb, accordingly, is the product of two forces inter-

penetrating each other organically, in which the polar relation of the bee to its corresponding objects is actualized as a concrete fact.

So is true philosophy a result, or concrete fact, in the sphere of rational life, implying, on the one hand, a subjective formative principle, the human reason, and on the other, a real objective order of things, the outer world. These sustain to each other a polar relation. The intuitive ideas of the reason presuppose and demand the existence of the outer world as it is in itself, just as the life of the bee calls for the existence of nectar and farina; and the laws of being which underlie and determine the outer world correspond to and satisfy the intuitive ideas of the reason, just as the nature of nectar and farina is adapted to the wants and the design of bee-life. When the reciprocal demands of this polar relation are met, the outer world is subjected to a process of reproduction according to the laws of thinking; and the result is the legitimate union of both in a system of truth.

Thus, on the basis of a principle which the person of Christ reveals and actualizes, under its highest and most perfect form, we develop the true relation of the human reason to the outer

world. The thinking subject and the real object do not stand in an irreconcilable antagonism, but in virtue of a reciprocal adaptation they become one, not absolutely or pantheistically but organically, in a true system of philosophy. This organic solution excludes the errors, and includes the truth, of the false fundamental systems which we have reviewed.

§ 38.

CONCLUSION OF THE WHOLE ARGUMENT.

In order to determine the essential conditions of a true system of philosophy we have endeavored to unfold a correct answer to three primary questions: What is the first principle of philosophical thinking? What is the relative position of the human reason? and, What is the relation of the human reason to the outer world? Assuming the universe to be a creation, and the person of Christ to be a perfect revelation of the natural and the supernatural, we have reached the following conclusions:

1. The necessary fundamental principle of all philosophy is a true idea of God as conditional

to a legitimate conception of the reason, or of any subordinate being, or of any part of the universe.

2. The human reason, a created spirit, cannot determine a true conception of itself from itself, and cannot consistently conduct any process of thought on the assumption that *it* is the ultimate source of truth, but must refer itself to God, its Creator, the proper ground and law of its being, and determine a true conception of itself by a true idea of God.

3. The relation of the human reason to the outer world, or the true relation of the subject to the object of thought, is exhibited in its highest and most complete form in the relation of the divine to the human nature in the person of Christ.

As the three primary questions arise from one fundamental question (vide § 23), these different answers are reducible to one answer. The true idea of God is revealed in Jesus Christ, who is very *God*. The true nature of man or the proper subordinate position of the reason, is revealed in Christ, who is very *man*. He is both the ground and the perfect ideal of humanity. And the true relation of the reason to the outer world is re-

vealed in Christ, who is the organic *union* of God and man. Thus we find the first principle of philosophy, the relative position of the human reason, and the relation of the reason, the subject, to the outer world, the object of thought, exhibited in the person of Christ. The person of Christ is, therefore, the concrete resolution of all the fundamental problems in philosophy—the highest revelation of God, of man, of the world, and of their necessary reciprocal relations. The organic union of God and man, He is the absolute ground of the objective universal whole and the subjective centre of all possible forms of knowledge. Or, under another view based upon the correspondence of Christology to philosophy (§ 36), Christ is God, the absolute reason by whose creative energy and according to whose eternal ideas the universe was called into being and continues to exist, in organic union with man, the head of the terrestrial creation, the perfection and culminating point of all lower and sensuous orders of existence. He is, therefore, the solution of the broadest and most comprehensive problem, and must be the ultimate principle upon which alone every other problem in theology or philosophy can finally be solved.

Starting with the fundamental ideas which the person of Christ reveals, and proceeding logically or according to the laws of thinking, it becomes possible to develop a true system of philosophy. But every system which either formally sets aside Christ or quietly ignores Him, is, as to its principle, a mere arbitrary hypothesis, which runs out necessarily, if unfolded to its last consequences, into a direct contradiction of some primary belief of the reason with which the system itself set out—a fact that the history of ancient and modern philosophy abundantly corroborates. For the profoundest thinkers of the world, who have prosecuted the study of philosophy without regard to Christ as the determining principle, but with patient research, and have reared systems that display extraordinary discipline and compass of thought and will stand as monuments of genius for ages to come, have nevertheless not been able to reach a result which authenticates itself as the truth either to the natural or to the Christian consciousness.

CHAPTER V.

LOGIC AND ITS RELATIONS.

§ 39.

THE NATURE OF LOGIC.

THE nature of philosophy involves the nature of logic; for thinking, the activity of the reason by which a system of philosophy is produced, implies, as we have seen, the existence of certain laws according to which the reason thinks. Of these laws and their relation to the categories of thought, the reason seeks to become conscious, and thus gives rise to the Science of Logic. It is with the laws of the reason accordingly that Logic has to do. They are its object and determine its nature. But as the reason is the organ of philosophy and determines its form, logic sustains also an internal relation to a true system of philosophy and to every branch of science.

We will, therefore, consider the general subject

of this chapter in two sections: the one treating of the object of logic, and the other, of its relations.

SECTION I.

THE OBJECT OF LOGIC.

§ 40.

THE LAWS OF THINKING.

The laws of the reason exist and operate prior to consciousness. For the human reason, as we endeavored to show in §§ 3 and 4, is not a mechanism or an instrument, nor a mass of powers, nor yet a simple power, but an organism, a living, spiritual entity, possessing a life-principle and essential attributes which are its own specifically, and distinguish it from every other order of being. This life-principle operates with determining force and according to its own nature. Hence, as in any other living organism, the reciprocal relation of its members and powers to each other and their common relation to the life-principle, as well as its modes of being and activity, are not a consequence of development nor im-

pressed from without by contact or connection with anything else, but unfolded from within and determined in all their peculiarities by what the reason is in itself as an order of spirit in union with a material body.

What, then, is a law of the reason? It is not simply an order of sequence in which one particular state or act of the mind uniformly calls forth or follows another; it is not a category of thought which the developed reason invents for its own purposes and convenience; but it is a necessity which determines the order and the form of thought. This necessity is not external and mechanical, but internal and organic—not an accidental but an essential quality belonging to the very constitution of the human spirit; and determines its activity no less in its incipient and lowest than in its last and highest stages of development.

Or, we may say, the laws of thinking are each a living power latent in the germ of the reason, which begin to operate with a self-determining force so soon as the conditions of a normal development are present. They are not, therefore, the result of will or a consequence of reflection; but they exist anterior to and are operative in all

volition and reflection. They are antecedent to an order of sequence in knowledge and underlie all categories of consciousness. When developed in virtue of these inner vital forces, the reason reflects upon itself and becomes conscious of them as a part of its own constitution. Then it predicates them of itself as being each a necessity or law underlying and controlling its own activity—a law according to which the activity of the reason is and must be conducted in order to constitute rational and true thinking.

§ 41.

THE LAWS OF THINKING IN THEIR RELATION TO THE
REASON ILLUSTRATED.

The laws of thinking bear a relation to the human spirit like that which the laws of vegetable life sustain to the plant, the laws of animal life to the animal, or the laws of the human body do to the growth and activity of the body. There is that in the constitution of the eye, for example, which, on the one hand, necessitates its spherical form, the relative position and density of the different humors, the susceptibility of the retina,

and the variable diameter of the pupil; and, on the other, peremptorily forbids the compression of the organ, the contact of a solid substance with the sclerotic coat, or the introduction of a needle through the pupil. This general necessity is the law of the eye; and becomes a particular necessity as determining the function of each part of the eye. We may speak therefore of *the law* or of *the laws* of the eye, according as we consider the general necessity determining its capacities and functions as a whole, or the particular necessities determining the form and function of each particular part; the particular being but a branching out of the general. Seeing, accordingly, does not form these laws for its use, but these laws are anterior to and operate in the normal activity of the eye. The act of seeing implies the previous existence of these laws; and is possible only in virtue of implicit obedience to them. If the eye sustain a serious injury it cannot see; that is, if any primary law be violated, the eye suffers and ceases to be itself; its activity is abnormal and deceptive, or is entirely suspended.

Or to take the human body. There is that in the nature of the body, which, lying back of all

development and phenomena, determines the conformation, position, and functions of the brain, the heart, lungs, liver, five senses, etc.—a general necessity underlying and branching off into various particular necessities, that imperatively require each organ to be active thus and so, and absolutely prohibit any deviation from or interference with the predetermined functional action, under a penalty of suffering or death, which is ever inflicted with inflexible rigor. There is no sense, therefore, in which any law of the body is derived or results from the action of any one or all the organs of the body, or from the symmetry and perfection of the whole system. But the harmony of the body, an organic totality made up of many interdependent parts, and the special purpose which each organ subserves, are the consequence and the direct expression of a law, or of a system of laws, which is active with determining force in the embryo, that is, even before the child begins to be as an individual and the proper functions of its various organs are established.

A similar and equally forcible analogy may be seen in the plant.

The laws of the eye in their relation to the eye, and the laws of the body in their relation to the

body, illustrate the laws of thinking in their relation to the activity of the reason. There is that in its nature, for example, which necessitates a conception in order to a judgment, and a judgment in order to reasoning; which necessitates a subject of thought and the predication of some state or quality of the subject, or the recognition of an object and some relation between the subject and object, or the connection of every predicate with its subject to be either positive or negative, in order to the existence of a judgment; and necessitates the recognition of a particular as concluded under a general conception, in order to the possibility of a rational conclusion. This general necessity is the law of the reason; and becomes a particular necessity in each particular relation. We speak, therefore, of the law or of the laws of thinking according as we designate the general necessity underlying the activity of reason, or the particular necessities which determine particular forms of activity. Such an internal necessity accordingly is not imposed upon the reason by experience, nor determined by volition; just as the act of seeing does not call into existence the laws of the eye, or as the growth and functions of the body do not origi-

nate physiological laws. But all judgment, experience, and volition are rendered possible by the spontaneous force of this necessity which exists in the being of the reason; just as vision presupposes and depends upon the laws of vision, or as the development, health, and vigor of the body imply the regular operation of certain organic forces which lie in the constitution of the body.

§ 42.

THE SCIENCE OF LOGIC DEFINED.

To discover, unfold, and define these laws, to exhibit their internal relation to the categories of thought, and their determining force upon every kind of investigation or connected discourse, is the office of Logic. It is the Science of *formal* truth in distinction from *material* truth; that is, the science of the form which all legitimate thinking, and in consequence also all true knowledge, whether strictly scientific or not, must assume.

This view of the Science of Logic lies in the etymology of the term. Logic, derived from the

Greek *λογος*, first *reason*, then *word*, is *the* word. A single word is a form of expression—a form through which a single thought or conception gains suitable utterance. It is the body of a conception. A conception is the soul of a word. But a conception is only one element of the thinking process. The laws of the reason, which pervade all conceptions and judgments, give to these conceptions and judgments a common character, and unite them as parts of a whole. Thinking possesses thus a generic form—a form common to every particular process of thinking. This generic form is *the* word. The science of *the* word, the generic form of thinking, in distinction from *a* word, or a particular form, is Logic; or that which unfolds the nature of the process in which thinking as such consists.

Logic is abstract or concrete. As the science which has to do with the laws of the reason, or with the process of thinking as such, irrespective of application to any object of thought, it is *abstract*; like pure mathematics which treats of the laws and formulæ of magnitude or quantity, without relation to matter. But as the laws of reason are immanent in the activity of the reason reproducing its object, logic becomes *concrete* in

every scientific system; just as the principles of pure mathematics become concrete in a system of astronomy.

According to § 20, the constitution of the human reason corresponds to the objective order of the universal whole. The universal whole, comprising different divisions and innumerable classes of being, is finite and relative, and springs from a creative act of the infinite and absolute. The will of God, the absolute Being, is the law for each part of relative existence. That law, as expressed in a class, determines the nature of the species, and as expressed in a species, determines the nature of the individual. The order of objective being is, therefore, first the absolute, then the relative or created whole, then a department of the created whole, a class, and so on. The individual rests in the species, the species in the genus; the creature in the will and power of the Creator.

To this objective order of being the subjective process of thinking corresponds. It begins with the most general, then passes to the less general, then to the less general still, and so on to the particular and the singular. It determines the particular from the general; not the general from

the particular. This is the subjective order always. There is accordingly but one legitimate process of thinking, and that is deduction. Induction is not a co-ordinate, but a subordinate process; and may very properly be called a species of deduction. Induction passes, it is true, from the known to the unknown particulars; or from a sufficient number of known particulars belonging to an object it concludes upon the general nature of the object itself. But the inductive process always assumes a general principle from which it derives its validity; namely, that a given number of particular phenomena belonging to an object—to an individual, or a class,—being known, we know the general nature of the object itself. If this principle be false, the result of every process of induction is false also. The general principle, now, holds the place of the major proposition in a process of induction. The particular phenomena as predicated of the object, determine the minor. The object is subjected to an analysis in order to establish the number and character of phenomena. The result of the induction is an inference drawn from the known phenomena by means of the general principle. The inference is broader, in-

deed, than the known particulars; it pertains to the general nature of the object. But the object is itself a particular, a particular class of being. The inference pertains really to the general nature of a particular class, and is grounded in the assumed principle—a principle which is much more general than the result of the induction.

We may add, that there are other still more general principles which lie back of the one upon which the process of induction is based. In the empirical sciences, for example, it is always assumed that the outward object exists, that it possesses a general nature, and that sensation is veracious.

Taking this view of the correspondence between the laws of the reason and the constitution of the universal whole, all legitimate reasoning is to be regarded as deductive; and Logic is in consequence to be defined as the Science of Deductive Reasoning—a definition that is not in conflict with the one given before, but exhibits the science under a different aspect.

Those who profess to start absolutely with certain particular phenomena ascertained to be true by careful investigation or experiment, and from

these to draw a general conclusion, refusing, at the same time, to accept any general proposition as true which is not an induction from known facts, either impose upon themselves, or make a wilful attempt to impose upon others. Whilst they quietly assume, whether consciously or not, a general truth; and, sustained by it, proceed legitimately from particulars to a general, or from the parts to a whole, they ignore their indebtedness to the assumed general truth, and even presume to deny its existence. Relatively the human reason does infer a general truth from a number of particular facts; that is, in a subordinate case, and sustained by a true general principle, the inductive process is legitimate; the result of the induction being, however, less general than the principle or principles by which the process is legitimated. But absolutely the reason concludes upon a particular from a general truth. It is so constituted that, in spite of all effort to contrary, it always pursues this order of thought. The reverse order, or the inductive method, regarded as an absolute method, or as co-ordinate with the deductive method, is a rational impossibility. The reason cannot think logically, whether it proceed from the whole to

the parts, or from the parts to the whole, without an ultimate basis upon which it rests—an assumed general truth which, as a principle, determines and legitimates the process.

The history of any empirical science may be used as a satisfactory illustration. But we do not wish to extend the discussion by particularizing.

SECTION II.

THE RELATIONS OF LOGIC.

§ 43.

THE RELATION OF LOGIC TO PHILOSOPHY.

THE relation of Logic to Philosophy is deduced from the nature of both. Philosophy is, on the one hand, a process of the reason reproducing its objects according to its own laws; and, on the other, the existence of objective being in idea, or under an ideal form. As such it is wrought out and moves forward only in the light of intuitive ideas, and in the strength of legitimate thinking.

Logic is the science not of the reason, nor yet directly of the fundamental operations of the

reason, but the science of legitimate thinking, that is, of the laws which lie in the constitution of the human reason, and are active in its fundamental operations with determining force. In other words, it develops the internal necessities according to which the reason thinks. It sets forth these necessities in their relation to and influence upon conception, judgment, and reasoning. And it determines what is, and what is not, a valid process of argumentation in every department of human knowledge.

Logic is, therefore, the *plastic power*, or formative principle, of Philosophy. According to § 21, there are three things comprehended in philosophy: its form, its matter, and the union of both; an organic union in the sphere of thought. The matter is determined by the nature of being; the form is given forth spontaneously by the ideas and laws of the reason. It follows that logic, or the science of legitimate thinking, sustains an internal and necessary relation to all scientific knowledge. It is a manifold force or power springing from the reason, under the spontaneous operation of which, being as such, or the objective nature of being, assumes scientific form, or system, in philosophy.

Hence, logic is also the subjective condition, and an essential element of philosophy.

It is the *subjective condition*. The human reason can lay hold of and reproduce its objects only by conforming to its own laws—not otherwise. Thinking must proceed according to the laws of thinking. Then only is it valid. It is valid because of implicit obedience to these subjective demands. That is to say, a process of legitimate reproductive thinking depends upon the plastic power of logic as a subjective condition, without which every effort of reason must run into inevitable confusion and contradiction.

It is an *essential element*. Being the plastic power which is conditional to legitimate reproductive thinking, logic becomes an integral part also of philosophy. It enters into the nature of the philosophic process, and all philosophic results, just as the mysterious laws of the bee, or of bee-life, enter into and constitute a constituent of the honeycomb; or as the principles of pure mathematics enter into and become a constituent of the Science of Astronomy.

A system of philosophy is logical, not from convenience, or by any arbitrary arrangement, but of necessity. It is logical in its beginning,

at every step of its onward movement, and in the possession of any truth which it may evolve. The reason may, indeed, disregard logic; it may violate its own laws; and very often does it, either consciously or unconsciously; but such activity is not rational; and reason does not, and cannot, come into possession of any truth philosophically. The results of the reason active in violation of itself, amount to nothing more than a tissue of absurdities.

§ 44.

THE PROVINCE OF LOGIC IN ITS RELATION TO
PHILOSOPHY.

The object of philosophy, or that on which it terminates, is the objective order of being, in its origin, in the modes of its subsistence, and in all its relations. Its end is the possession of material truth, or the evolution of this objective order in idea, and in a manner that is conformable to its own nature.

The object of logic, or that on which it terminates, is the whole process of thinking as deter-

mined by the constitution of the subject, the human reason, or that which philosophizes. Its end is the possession of formal truth, or the actualization of a process of thought which, in principle and method, corresponds to what the laws of the human reason themselves demand.

The province of logic in its relation to philosophy, is accordingly of a threefold character. It pertains to the first premiss, or fundamental principle of reasoning; to the process of reasoning itself; and to the conclusion or thesis which it is the design of a process of reasoning to establish.

1. It belongs to the province of logic to determine, in a general way, the necessity of fundamental judgments or premises in order to a conclusion. Some of these are less, and others more remote. Logic determines the necessity of a major premiss in a simple syllogism. It determines the necessity of a fundamental premiss, or of a more general judgment than that contained in the major proposition of a simple syllogism, in a given series of subordinate judgments in order to the validity of any one of them. To this fundamental premiss the series is reducible. Logic also determines the necessity of an ultimate premiss, or of a most general and comprehensive

judgment, to which all those premises which are fundamental to particular series of subordinate premises may be reduced, in order to the validity of their fundamental relation. For all legitimate thinking presupposes some ultimate proposition—some idea or general judgment—known, or assumed to be true, in which the process of thought begins, and on which the validity and force of the successive steps of the process depend.

In obedience to the demands of logic, philosophy determines *what* the judgment or premiss is, from which it derives any conclusion. It determines *what* the general judgment, or the principle, is, upon which a scientific system of truth is constructed. And it struggles to determine *what* is the most general and comprehensive judgment, or the first of all principles, in virtue of which every subordinate principle is true. The question, *what?* must be put according to the demands of logic, and is answered according to the demands of philosophy. Or, we may say, that the plastic power of logic requires a system of philosophy to have a fundamental principle—without it a pretended system cannot be a system,—whilst philosophy itself determines the matter of the principle, or what the fundamental

principle or hypothesis really is, from which, as a starting-point, a system of truth is unfolded.

2. Assuming a general judgment or fundamental premiss, logic determines the necessity and order of a process of reasoning by which a conclusion is established. It then decides whether a given process of reasoning be valid or not. It does not decide whether the matter or contents of the reasoning be true. That depends upon the truth of the premises. It decides whether or not the reasoning possesses *formal* truth ; that is, whether it proceeds according to those innate laws of the human reason, conformity to which the nature of reasoning, as it is in itself, absolutely demands. The violation of any law of thinking turns a pretended train of reasoning into a nullity. Logic detects such violation, whether intentional or accidental, and distinguishes between real thinking and a mere sophism or paralogism.

A philosophical train of reasoning comprehends and embodies the power of logic. Beginning with a principle, philosophy actualizes the determinations of logic in a systematic order of thought possessing material truth. Whilst the one merely exhibits the necessary conditions of a

valid process of thought, the other is that valid process itself moving forward in a real way, step by step, from a fundamental principle towards a legitimate conclusion. Hence, as distinguished from logic, philosophy determines, not the formal, but the *material* truth, or the contents, of a system. Strictly speaking, however, formal truth and material truth are organically one in a true system of thinking. Logic is the plastic power of a scientific system; and a scientific system is the necessary form which the objective truth, apprehended and reproduced by the reason under the operation of its own laws, assumes in philosophy. Logic, or the necessity of formal truth, that is, the correspondence of any actual process of thought to the demands of the laws of thought, is therefore the essential condition of material truth in philosophy, and in all the particular sciences. Philosophy—to express the same thing in different language—is the *logical* reproduction of being, in its necessity and generality; and a particular science is the *logical* reproduction of a particular department of being or objective truth.

3. Logic determines the nature and necessity of a conclusion as the completion of a process of

reasoning. Without reaching a judgment that takes up and expresses the thought which the process unfolds from a fundamental conception, the process itself is incomplete, and of no force. Logic determines *how* this judgment or conclusion must follow from given premises, and *what* elements it must comprehend in order to be valid. In any given case, it decides whether the apparent conclusion is really a conclusion or not; that is, whether it possesses *formal* truth. It possesses formal truth when it follows necessarily by a valid process of deduction from a fundamental principle or hypothesis.

Logic does not decide the *material* truth of the conclusion; that is, whether the matter or contents of the conclusion be true or not. This it serves to do indirectly, but not directly. If the fundamental conception be true, and the process of reasoning valid, the conclusion must be true both as to form and matter. If the fundamental conception be false, and the process of reasoning valid, the conclusion is true as to form, but must be false as to its contents or matter. If the fundamental judgment be true, but the process of reasoning not valid or sophistical, the conclusion cannot be true as a conclusion either as to form

or matter; as, however, an illogical process of reasoning is altogether arbitrary, the matter of the conclusion may be true by accident; yet, the reason can have no certainty of its truth, because it does not follow from the fundamental judgment according to the laws of thinking. If the fundamental judgment be false, and the process of reasoning false also, the apparent conclusion is no conclusion at all; the reason does not come into possession of any truth whatever, either as to matter or as to form, but is led into bewildering confusion.

The fundamental judgment or premiss is the *sine qua non* of the logical process; and a true principle is the *sine qua non* of a true system of philosophy. True philosophy meets the absolute demand of logic by starting in a fundamental truth as its principle; then actualizes the logical process in a scientific system, which is an organic whole composed of various parts or members, all of which are unfolded from and rest in the principle; and embodies the necessary conclusion in the proximate results, and in the final result, in which this actual process of legitimate thinking becomes complete. The final result is the possession of the objective truth by the human

reason under a form which is determined by itself.

A false system of philosophy is logical, and must be logical, as well as a true system. If not logical it is not a system. But a true system of philosophy cannot be illogical; if illogical, there is no organic union of formal and material truth. The object does not exist in the sphere of thought according to the laws of thought; it cannot in consequence be said to exist properly in the sphere of thought at all. For objective truth can be reproduced by the reason only in accordance with the laws that determine its own activity. A true philosophy is therefore the living embodiment of a sound logic; just as a healthy, vigorous human body is the real actualization of a correct system of physiology.

Instead of laying hold of an objective truth, however, the reason may project a creation of its own, a mere abstraction, that does not correspond to any entity in the sphere of being; or it may take a single aspect of a truth, and hold it as the whole truth; then proceed to think in obedience to the laws of thinking; and develop a system that is strictly scientific. A system thus developed can be truly logical, but it cannot be truly

philosophical. To meet the demands of philosophy, a system is required to meet the demands of logic: for logic is the subjective condition of philosophy; but to meet the demands of logic, a system is not required to meet the demands of philosophy. A system may be truly logical, and yet be nothing more in reality than a fanciful theory or empty speculation; because though starting in a hypothesis from which every part of the system, and its results, are legitimately developed, yet that hypothesis is not a fundamental truth.

It is not the province of logic accordingly to lay down what the premises must be in any train of thought, but simply to determine the necessity of premises; much less is it the province of logic to give forth the fundamental principle of a true philosophy, but simply to determine the absolute necessity of such a fundamental principle, and to unfold the laws to which philosophy must conform in order to be itself. It is the province of philosophy to determine its own premises, and also to discover, in the light of faith, that one principle of truth to which all other principles of truth are subordinate. The sphere of philosophy transcends the

sphere of logic; yet, in its profoundest investigations, or in its highest flights, in its struggles to solve the most difficult problems, or in the triumphant display of its grandest results, it is sustained by the plastic power of logic, which it appropriates and incorporates organically as one of its essential elements.

§ 45.

THE HARMONY OF LOGIC AND TRUE PHILOSOPHY.

The nature of the relation of logic to a system of philosophy, and the particular province of logic in this relation, imply a correspondence of the one to the other, a real harmony of both as to principle and method. This harmony can be but partial in Idealism or Realism, or any other one-sided system, but becomes complete in a consistent christological philosophy.

A true philosophy must start, as we have shown (vid. § 24), in the absolute ground of the universal whole as its first principle. That absolute ground is God. The idea of God is an intuition of the reason—a primary belief which

is necessarily developed with the normal development of the human reason. The constitution of the reason is such that it cannot but have an idea of God. (§ 13.) But, in consequence of the disordering power of moral evil or sin, the idea of God, which the reason gives forth of itself, is imperfect and unsatisfactory; and the history of philosophy becomes a history of the fruitless struggle of the human reason to find out what the first principle of all knowledge is. This deepest want is met by the supernatural revelation of God in the person of Jesus Christ. Himself both God and man, He exhibits the true idea of the absolute ground of universal existence, and the normal relative position of man, or of the human reason, the organ of philosophy. Philosophically considered, He is the union of the subjective and the objective—a primary truth which, we think, no believer in the Christian Religion can consistently refuse to hold. It follows that the person of Christ, or the idea of God and of man which faith in Christ possesses and exhibits, is the first principle of true philosophy. (§ 28.) True philosophy cannot, therefore, begin with the result of a logical demonstration. It is an impossibility grounded in the very constitu-

tion of the human reason. It must begin in a belief that lies at the foundation of all other beliefs; in the belief of a concrete self-authenticating fact which the reason embraces and holds without the aid of logical proof.

Here precisely do we find the inward harmony of true philosophy and logic. The first law of logical reasoning is the necessity of a major premiss from which a conclusion is deduced; and of a fundamental judgment, or a first principle, to which all subordinate premises are reducible. (§ 44, 1.) In the nature of the case, this fundamental judgment must be assumed as true without proof. It cannot be established by argument. It is an intuition of the reason; the intuition presupposes and corresponds to an objective entity; and in virtue of this correspondence, the entity authenticates itself to the reason as true. To assert that this fundamental judgment can be established by logical reasoning, is a contradiction. It is to say that the fundamental judgment is not a fundamental, but a derived, judgment. But a derived judgment presupposes some other judgment from which it is derived, that is, an undervived or primary judgment, which would then be really the fundamental one. In being funda-

mental it would not be the *product* but the *source* or basis of proof; not a conclusion but an *assumption* or *belief*. Thus we return to the same position. With such inevitable necessity do the laws of thinking carry every process of sound ratiocination back to a judgment, a principle, which the reason receives as certainly true, independently of any logical reasoning; and from it derives all the force which any demonstration possesses.

But to satisfy the deepest demands of Logic, the underived or fundamental judgment, with which all reasoning begins, must be absolute. It must be the most comprehensive of all judgments; and under it all other judgments, which are severally fundamental to particular trains of reasoning, must be concluded as relative. Such an absolute judgment can be none other than a belief; a belief to which all other beliefs are necessarily subordinate; a belief from which other beliefs derive their self-authenticating power, and the processes of demonstrative reasoning based upon them derive their validity. It is the nature of Logic, accordingly, to *assume* a major premiss, or a principle, before it proceeds to prove a conclusion; and to *assume* an absolute principle, in other words, to adopt a primary

belief, to which all relative principles are referred and subordinated, before it allows any relative principle to stand as valid. To begin a system of philosophy with the idea of God, which faith in Christ reveals, is therefore not only consistent with the principles of logic, but it is the very posture of the human reason which the plastic power of logic necessitates. Not religion and philosophy merely, but the laws of thinking demand just such an ultimate principle as the person of Christ reveals. The demands of a true system of philosophy flow from the demands of the reason.

§ 46.

THE RELATION OF LOGIC TO THE SCIENCES.

The relation of Logic to philosophy, is its relation to the Sciences; for the Sciences are particular branches of philosophy. A science is some particular department of objective being reproduced, and held in idea, by the human reason, according to the laws of thinking. As in philosophy, therefore, so in a science; there are three things essential to its existence: an object, or that

which is what it is independently of man's will ; a subject, or that which apprehends the object, and reproduces it according to the determinations of its own laws ; and the organic union of object and subject in idea. The object determines the matter, or contents, of a science ; the subject, its form ; whilst the organic union of matter and form is the science itself, and rests upon the necessary correspondence of the human reason to its objects.

The laws of thinking thus enter into a science, and determine its nature, as really as the object of which the science treats. It cannot exist without either. A science must be logical ; it must conform to the laws of thought in its principle, method, and results. If not logical, if it violate the laws of thought, it is not, strictly speaking, a science ; it is no more than an arbitrary arrangement of certain opinions, whether true or false. Just as a reputed science, without having any real corresponding object, is not a science ; for it lacks all reality. It is only a figment of the brain ; logical and beautiful it may be, but it is not even the shadow of an objective truth.

As in philosophy in general so also in every

branch of it, this relation involves three particulars. Logic is the plastic *power* or formative principle of a science; a living force which, presupposing the existence of an objective entity, determines the manner of its reproduction in the sphere of thought.

Logic is the subjective *condition*; without it there can be no science. As science is the product of two factors, one of which is the human reason, it can be unfolded only when the human reason is active, according to its own laws. Illogical thinking cannot result even in certain knowledge, much less in a science.

Logic is an essential *element* of a science; a formative force which is taken up and incorporated into a science as an integral part of it. In virtue of this element, a science is a system, namely, an organic whole made up of various parts or members, which are derived from, and pervaded by, a principle binding them all into a unity. Not an abstract, but a concrete system; a system because wrought out according to the laws of thinking; and concrete, because the legitimate union of the real and ideal, the matter and form of thought, in one organic totality.

These three particulars are not three different

forces, but so many aspects of one subjective force, which, as a constituent, enters into and moulds a science spontaneously. It is the unseen and silent but potent and resistless energy of the human reason, giving to its knowledge a shape which is after its own image.

The relation of logic to a science is, therefore, not outward and formal, or mechanical, but inward and organic. A science developed and wrought out *scientifically*, is such a free union of the objective and subjective, of the real and ideal, of the ontological and the logical, that both constituent elements disappear in their separate character. The ontological in a science, is not identical with the object itself, as it exists in the sphere of being. The one, indeed, must answer to the other—the matter of a science to the objective entity. Otherwise it were devoid of all truth. But the object with its actual attributes and relations is one thing, and that object as apprehended and appropriated by the reason, thus becoming an element in scientific knowledge, is a very different thing. The one is a part of the real world as it is in itself, the other is a part of the ideal world, or of the real world as held in idea by the power of reason.

So too with logic. Treated as a separate science, it has its abstruse forms, its subtle distinctions, and its nice technicalities. It cannot exist without them. But when logic enters properly into a science as its formative power and an essential element, these forms and technicalities have no place. They fall away naturally. The logical principle underlies, penetrates, and moulds the whole science, operating organically, not as a force from without directed simply by will, but as a force from within. It casts knowledge thus into reason's own mould, and determines the entire structure and form of a science. But that form is not the form of logic, separately considered; it is the form which the objective entity assumes under the determinative force of the reason, active according to its own laws. It is the form which logic, considered as a living subjective power, gives to the matter of a science. The logical and the ontological become an organic unity; the one determining as to form, the other being determined. The form of any science is not, therefore, peculiar either to logic as such, or to the objective entity, but is the legitimate product of two factors which mutually demand and complete each other in

the sphere of thought. The proper form of a science is peculiar to the science itself.

This we regard as the true relation of logic to a science. We call it inward and organic. Its operation is spontaneous, yet constant. The false relation is outward and mechanical. It springs from the will rather than from the reason. It operates as a force *upon* a science, rather than as an all-pervading principle *in* it. It determines the order of thought according to arbitrary rules, rather than allows the science to determine its own order according to its principle. This false relation is seen in the arrangement and formalities peculiar to logic, which are imposed upon a science; which obtrude themselves upon our view unnecessarily; mar the beauty of its structure; and give it a stiff, affected air. Such arbitrary arrangement and logical formality do not render a science truly logical—do not indicate the presence and power of logic as really controlling the order and form of thought. Just the reverse. They betray the absence of the plastic power of logic; and in consequence also, a want of logical discipline and scientific culture. The reason does not reproduce its objects freely according to its inherent laws, but

acts under the direction of the will imposing a method of its own. The result is not an organic, but a mechanical unity. The form is not the product of the science; the science does not put on its form as a tree puts on its leaves and flowers; the form is rather a garment, cut and manufactured according to measurement. We have a mechanism rather than a natural growth.

The true relation of logic to science, excluding all mechanical arrangement and logical formality, shows itself in the naturalness, symmetry, and perfection of the science. The science begins in a principle, unfolds its parts in due proportion and a natural order, moves along by an easy process of consistent reasoning, and completes itself in a beautiful whole. Though the logical element underlies and pervades every part of the system as an essential formative power, yet it is nowhere seen as such, because it is the law, and becomes an actual constituent of the science. Using the word in its true sense, we may say, therefore, that no science, or essay, not even a poem, can be too logical in its construction. The more logical any work is, whether of science or art, the more freely do the mere formalities of logic recede from view; the more

natural and complete is the organic union of the object of thought with the laws of thought; and nothing is so prominent as the truth, beauty, and perfection of the thing itself—the product of two distinct but complementary factors.

A good illustration is afforded by a work of art. Haydn's Creation, for example, or the statue of Apollo, is the embodiment and expression of a conception in an outward form, the one in sound, the other in marble. The artist studies and masters the principles and laws of his art; and they become a part of himself, pervade and mould the workings of his genius. He applies his skill to the marble block in the plastic power of the art living in himself. The result is the union of the conception and the material, wrought out in virtue of these principles and laws, and in entire conformity to them. But the rules of the art and the formalities of artistic skill, necessarily disappear. And they disappear just in the degree that the laws of art are an internal, necessary, and controlling power in the production of the work. The work is truly artistic in proportion to its artlessness. The conception itself addresses the eye through the material as its transparent medium, and rivets the attention o

the beholder. On the contrary, just in the degree that the laws of art sustain a merely external connection to a work of art, will the work manifest the presence and mechanical influence of these laws, and be proportionably imperfect; because they are *upon*, rather than *in* the work—associated with it, rather than a constituent part of it. A true work of art is a complete unity, that radiates its own peculiar glory.

Precisely such is the concrete relation of logic to a science. Unseen, but all-pervading, the logical element reveals its presence and power in the clear, full, systematic, and forcible reproduction and exhibition of the truth.

§ 47.

THE RELATION OF LOGIC TO THEOLOGY.

It would be in place now to particularize; to show how logic is related to the several departments of philosophy, or to each branch of science, physical, intellectual, and moral, considered by itself. To follow out such a train of thought, however, would swell this Introduction to the

Study of Philosophy beyond its proposed limits. We deem it proper, therefore, to confine our attention to but one branch, to Theology, the most sublime and important, and at the same time, the most difficult of the sciences.

It has been said that Theology transcends the sphere of Logic; and there is a sense, indeed, in which the assertion is true. The object of Theology, or that with which Theology has to do, and which it seeks to reproduce, is a grand order of supernatural realities brought to view by means of divine revelation. This objective order is infinite in its nature and relations; and consequently lies beyond the sphere of logical demonstration. The profoundest researches, and the most accurate and conclusive reasoning, cannot so establish any fundamental fact in supernatural revelation as to make it the legitimate result of a process of proof, and thus bring it within the grasp of the logical understanding. The power of faith alone, the first and highest act of the human reason, can lay hold of infinite realities, and make them the basis of theological science. Hence the whole system, no matter how much clear and satisfactory reasoning it may involve, must rest ultimately upon a belief, rather than

upon a rational conclusion—a result that, to some minds, seems to be in conflict rather than in harmony with the science of Logic.

Before proceeding any further, we would remark that, in this respect, Theology does not differ essentially from any other science. It may be said with equal propriety that any science, objectively considered, transcends the sphere of logic. Any sphere of objective being is far deeper and broader than the science of it at any stage of its progress. The constitution of the human soul, or of the living human body, is something different from the present state of Psychology, or of Physiology. The actual condition and history of the earth is something different from the science of Geology. So of other sciences. Hence the results of investigation, in any department of knowledge, a few sciences possibly excepted, are not commensurate with its corresponding object. The history of science in general is but the history of the human reason, struggling in all its might to transfer its objects, as they really are, to the sphere of thought; but at each step of joyous progress, like the astronomer observing the heavens with a telescope of greater magnifying power than any one that was

ever used before, the profound scholar is overwhelmed with a sense of vast regions lying beyond his reach, whose teeming harvests have never been gathered into the granaries of mind.

Not only, however, is a sphere of objective being deeper and broader than the corresponding science, but the science itself, at any stage of its progress, comprehends much more than the results of logical reasoning. The results of logical reasoning in relation to science, are legitimate conclusions derived from a principle, or from certain fundamental facts. But this principle, or these facts, logic cannot prove. The reason assumes them to be true intuitively; and they constitute the basis upon which the reason, obeying the laws of thought, constructs a system. Physiology, for example, the science of the living human body, assumes the existence of the human body, the presence of a life-power, and the operation of certain laws pervaded by this life-power; and in the strength of this assumption or belief, logical thinking develops the science. The particulars included in the assumption are the immediate facts of consciousness; or, we may say, the reason is cognizant of them by an act of direct vision. Their validity does not depend

upon a process of proof; but, on the contrary, any process of proof which Physiology comprehends, derives its validity from them. The foundation of the science, accordingly, lies beyond the reach of a demonstration.

What is true of Physiology is true also of Psychology, Ethics, etc. Every science rests ultimately not on a logical conclusion, but on what the reason by intuition assumes to be true; and, in this sense, all science transcends the sphere of logic. It follows that Theology and natural or intellectual science stand on the same footing; what is true of the one, as regards logic, is true also of the other; with this great difference, however, that the objective order of facts which Theology seeks to reproduce is infinitely higher, and more excellent intrinsically than that of any of the subordinate sciences.

There is a sense, however, in which the assertion that Theology transcends the sphere of logic, is not to be taken as true. The assertion implies, to say the least, an incomplete view of the subject. It implies that logic is synonymous with a demonstration—that it consists in evincing the truth of a proposition by a process of syllogistic reasoning. But logic, considered as the science

of the laws of thinking, is evidently much more than this. It includes, as we have endeavored to show, three essential elements: 1. A fundamental proposition—a proposition the direct assumption of which the laws of thinking necessitate. 2. A regular process of deduction. 3. A conclusion derived by a legitimate process of reasoning from the fundamental proposition. Now, the first element is just as essential to sound logic as the second and third; nay, much more so; the assumption, in the form of a fundamental proposition, is both the ground and the condition of legitimate reasoning, and of the conclusion which it establishes. It is part of logic, indeed, to prove a conclusion, but it is just as really a part of logic to lay down a fundamental proposition without proof; the laws of thinking demanding the latter by the force of a stronger necessity than they do the former.

The belief of a fundamental fact, or the assumption of a principle, is therefore the first necessity alike of particular sciences and of logic. To speak more accurately, it is the necessity of a science—of natural or moral science, or of Theology,—because it is the first necessity of logic. Being the formative power and the subjective

element, as we have seen in § 46, of science, the logical gives shape and form to the reproduction of the ontological in the sphere of thought. It determines the structure of scientific knowledge in its beginning, in its process of development, and in its final results. This relation of the logical to the ontological in thought being necessary, it exists no matter how high or how low the sphere of objective being may be which the reason seeks to reproduce; whether supernatural or natural, divine or human, spiritual or material.

Taking this view of the subject, the Science of Theology does not transcend the sphere of logic in any such sense as implies any want of the fullest harmony of the one with the other. On the contrary, the relation of Logic to Theology, rightly considered, is as real, as intimate, and full as its relation to any other science. The proper objects of Theology are God, a self-existent, eternal Spirit, His attributes, and His relations to man and the universe in creation, providence, and redemption. These constitute a sublime objective order of facts, which transcend the power of rational comprehension. Nor can the unaided human reason, owing to the fall and the disordering influence of sin, discern them as

they are in its own light. It needs a higher revelation than itself. But when such a higher or supernatural revelation is given in Christ, and these infinite realities are brought to view, the belief of them is logical; that is, conformable to the laws of thinking, which, we repeat, require the assumption of some ultimate or irreducible truth as the basis of valid ratiocination; not only conformable to these laws, but necessary, also, to a valid system of theological science; just as conformable to the laws of thinking as the belief of certain axiomatic truths pertaining to quantity; and just as necessary to satisfy the subjective demands of the reason in theological science, as the belief of axioms is in mathematics.

If Theology is logical in its principle, which is Jesus Christ, the sum and substance of supernatural revelation, it is easy to see that it must be logical also, in its method and conclusions. It conforms to the demands of logic throughout, just as philosophy does, or any particular science. In other words, Logic bears the same relation generically to Theology that it does to any other branch of science; it is the plastic power, the subjective condition, and an essential element of a scientific knowledge of God and divine things.

In affirming this as the true relation, we proceed upon a principle which has already been laid down in the discussion on philosophy. The primary ideas and laws of the human reason correspond to the nature of every knowable object. Subject and object are complementary. The same principle is contained in the Mosaic account of the creation: man was created in the image, or in the likeness, of God. That is, the original constitution of man is adapted to a true knowledge of God. Man, a finite creature, may know God, an infinite, absolute Being. It is a postulate to say, on the one hand, that this knowledge must conform to the laws of knowledge, or that man must think of God according to the laws of thought; and on the other, that God is knowable objectively according to the categories of the human reason. Hence, God does no violence to the capacities and powers of the human reason, when he requires Himself to be known as revealed in the person of Christ; and the human reason does no violence to God and the objective nature of divine realities, when it holds these infinite realities in idea, or transfers them to the sphere of thought, under a form which is conformable to, and determined by the laws of

thinking. The affirmation of a threefold relation of logic to theology is based, therefore, on the nature of things, as taught both by philosophy and the Sacred Scriptures.

Here, then, we find the most general conditions of a true system of Theology. It must meet a twofold demand: the ontological and the logical; and the one as really and fully as the other. A true Theology must rest upon a view of God as He is in Himself, and in all his relations. If any assumption, or principle, or any supposed verity, is in conflict with the absolute truth, the system is false. The matter of Theology must correspond to the objective order of facts as supernaturally revealed.

With equal necessity must a true Theology proceed according to the determinative force of the reason; for the reason can have a true conception of an objective supernatural fact, only in the degree that it thinks in obedience to its own laws. The logical element is an essential element. An illogical Theology is therefore a false Theology, as really as a system that ignores supernatural revelation and proceeds on the basis of mere metaphysical speculation. But a logical Theology is not necessarily a true Theology. A

system may meet the logical without meeting the ontological demand; but not the reverse. If it embody the objective fact, it is logical of necessity.

In a true system, these conditions include each other. The ontological is conceived and known logically. As in philosophy, therefore, two distinct but complementary elements become one in the sphere of thought, so here. The objective and the subjective, the supernatural and the natural, the divine reality and the human form of thought, are wrought into an organic unity in a true system of Theology.

§ 48.

THE RELATION OF LOGIC TO LANGUAGE.

The object of logic is the categories and laws of thought. Logic is not concerned directly with the object of knowledge—with the soul as such, or with the body, with God, or with the material universe. So neither has it anything to do directly with language. Language is not its object. Yet logic bears a relation to language, just as it does to the science of the soul, or of the

body, of God, or of any part of the universe. To understand this relation we must understand the philosophy of language.

We have already had occasion to speak of a word as the body of a conception, and of a conception as the soul of a word. The figure is appropriate. It illustrates the true connection of thought and language. Language is not an arbitrary expedient, composed of various signs combined in various ways, by means of which thought is expressed and communicated. It is not arbitrary in the choice of words, nor in the arrangement of words. It is not arbitrary in the choice of its principles, nor in the relative force or connection of its principles. Nor is language something which the developed reason may use or not at pleasure; as though the reason could think as really without language as with it; or as though the developed reason might, at one time, adopt language as its vehicle for a certain purpose, and at another, lay it aside; and yet be active normally in the one case as really as in the other.

Man, as we have said, §§ 1 and 11, is a living unity. The body is as essential a part of him as the reason. He is not himself truly without

either. Without the body, he would be a ghost; without the reason, a gross animal. Only when both the reason and the body are properly unfolded, and are active as parts of a whole—when the reason is active in and through the body, and governs the body, and the body is active in due subordination to the behests of the reason—is man really and truly man. It follows that the normal activity of the reason is not conceivable in a state of separation from the normal activity of the body. Each demands the other. The proper functions and ends of the body demand the determinations of the reason; and the proper functions and ends of the reason presuppose the powers and functions of the body. In other words, the reason is to the body what the body requires in order that it may perform its office; and the body is to the reason what the reason requires in order that it may perform its office. Thus, the body and the reason complete each other mutually. The body is a true human body in virtue of the presence and influence of the reason; and the reason is a true human reason in virtue of its vital connection with the body, which is the condition and the medium of its normal action. Yet the reason and the body are

not co-ordinate. The reason is the higher, the body the lower entity. The reason appropriates the powers and functions of the body to its own proper ends, whilst the capacities and powers of the body are preadapted to such relative subordination.

There is, then, a correspondence of the organs of the body to the tendencies and wants of the reason. Here we find the key to language, or to the expression of thought in words. It is the tendency of the reason to utter itself in every member and organ of the body, and especially through the medium of the tongue. And to this tendency every organ of the body, and especially the tongue, or the organs of articulation, are adapted. Hence *language*, from *lingua*, or the direct utterance of the reason in single and connected words. The reason gives utterance to its thoughts in obedience to an inner impulse, but does it under an outward form which is determined by the organs of speech. This is language.

Language is, therefore, the embodiment of thought; the verbal form under which thought obtains suitable expression. Its nature is, in consequence, determined both by the reason and by the body. The reason determines the matter

of language, or that which it contains; not only what it expresses, but what it is internally. And the body, or the organs of speech, as affected by various circumstances, such as nationality, locality, etc., determine the form of its outward expression, namely, the formation and sound of letters, words, and whatever there is of language that addresses the sense, or serves to represent thought. Language, however, does not result from anything like a mechanical co-operation of the reason and the body. Its internal structure does not exist before the outward expression; nor its outward expression before the internal structure. As the reason and the body are parts of an organic whole, the matter and the form of language are the simultaneous product of a twofold force; the origin and progress of the one, the verbal expression, corresponding at all points to the origin and progress of the other, the development of thought; just as the life, strength, and properties of a tree, and its shape, size, and bulk, are the result of but one process of growth. Hence, the living language of a nation, and its intellectual and moral culture, rise and sink together. And what is true of a nation is true also of an indi-

vidual. A savage does not rise who does not either acquire the language of a civilized nation, or develop his native tongue to a higher degree of perfection. And a scholar does not become a perspicuous and vigorous thinker who cannot command a perspicuous and vigorous language. Every peculiarity of thought, as well as thought itself, necessarily implies some corresponding form of expression. Language is a necessity of human nature.

As the whole human family is but one species, there is, as regards their general nature, but one human reason, and but one human body. There is, in consequence, but one true Psychology, and but one true Physiology. A true system of either is true for all ages and nations. Either science may progress, indeed, may eliminate error and unfold new truth ; it may thus undergo great changes, and give rise to different systems ; but it can never, in any age or clime, ignore or transcend an established principle. And there is in consequence also but one language, and but one grammar. Particular languages may indeed be as numerous as the leaves on the limbs of a forest oak ; but, like them, they are one in having a common principle, a common order,

and common essential elements. Some are higher and others lower, some richer and others poorer, some almost perfect and finished, like the Greek and Latin, and others very rude and meagre, like the Esquimau; yet they are all identical as to that which constitutes each a language. For they are all modified embodiments of the categories and laws of thought, common to every race, nation, and individual of mankind, under a form which is determined by the same species of physical organism.

The philosophy of language furnishes an answer to the question in hand. Logic, objectively considered, is the categories and laws of thinking as such—these as they lie in the constitution of the reason, irrespective of any conceptions of them which the consciousness may possess. Subjectively considered, it is the science, or the scientific knowledge, of these laws. There is, therefore, on the one hand, an internal relation between objective logic and the structure of language; and on the other, between subjective logic and the science of language.

Objective logic being the categories and laws of thought, as they are in themselves, and language being the direct utterance of the reason in

single and connected words, logic is to be regarded as the formative principle of language as such. The reason, uttering itself in a way that is determined by its own nature, impresses upon language its own forms of being. The categories of thought become the essential attributes or elements of language; and the laws of thought become the laws of language. Language derives thus its internal structure and all its fundamental characteristics from the determining influence of objective logic, or from the forms under which the developed reason is active spontaneously.

It does not comport with the design of this discussion to enter into full particulars. We shall, therefore, offer but a few brief illustrations.

The reason conceives of the existence of an object, or of its being active, or of its relations. Parts of speech are accordingly reducible to three classes. Words name an object itself or its qualities; they name the activity of an object; or they name the relations of an object, and of its activity. They do not name anything which cannot properly be concluded under one of these categories. The noun and the verb—noun, from *nomen*, the name, or emphatically the *naming*

word, and verb, from *verbum*, the word, or emphatically the *acting* or *working* word—constitute, therefore, the framework of every single and of all connected expression.

The reason conceives of an object as agreeing or disagreeing, as connected or not connected, with some quality, or with some other object. Hence, every verbal expression must have a subject and a predicate; and assumes the form of affirmation or of negation. There can be no proposition that neither affirms nor denies. It can only do one of these two things; though it may do either in a variety of ways.

The reason evolves the category of time, and conceives of an object or activity, under one of its three divisions: past, present, and future. The *verb* has, therefore, three fundamental *tenses* in all languages, neither more nor less: a past, a present, and a future tense. The past and the future tense are subdivided more or less freely according to the genius of a people, in order to represent the subdivisions of time; but however numerous the tenses of a rich language may be, they are at bottom but three.

Similar illustrations of the internal relation of objective logic to the structure of language might

also be given, as regards number, degrees of comparison, moods, etc. No essential peculiarity of language, in general, or of any particular language, is arbitrary; but is grounded in the nature of the human reason, or in the reason as modified by race or nationality. The necessary forms under which the reason thinks, are the necessary forms under which the reason speaks. Thought determines expression.

The relation of subjective logic, or of the science of the laws of thinking, to the science of language, is parallel to the relation of objective logic to the internal structure of language. The one is the formative principle of language itself; the other must be the formative principle of the science of language. The science of language is philosophic grammar. A philosophic grammar exhibits the elements and laws of language as parts of an organic whole pervaded by the plastic force of one principle. That principle is what has already been stated; namely, that human speech is the verbal form of human thought. On the basis of this principle, one who has mastered the science of Logic, may construct a grammar of a language corresponding, in every part, and as a whole, to what the language is in

itself. The grammar represents the language according to the demands of logic ; and may be said to be a logical reproduction of the objective nature of language.

§ 49.

THE NECESSITY OF THE SCIENCE OF LOGIC.

If logic be the science of the laws of thought, the laws according to which every legitimate process of reasoning is conducted ; if logic be a plastic power operating spontaneously in the development and construction of every science ; and if logic be embodied in the structure and fundamental characteristics of every language ; whence the necessity of the science ? If the reason is inclined to think logically from a spontaneous impulse of its own constitution ; and logic is thus not a system adduced from without, and put upon the reason to control and guide its own activity, what good practical end is to be gained by teaching and studying logic ? This objection has often been raised ; and, to many minds, it comes with a great deal of force. Yet we must regard it as altogether gratuitous.

The objection may be met indirectly by a reference to the science of physiology. Physiology unfolds the constituent elements and laws of the living human body, those laws to which all the functions of the body conform from a spontaneous impulse. The life-power in the unconscious infant sets the whole system of the body in operation, and produces obedience to every law. Wherefore, then, construct and teach the science of the body? If the body obeys its own laws, whether these laws be known or not, whence the practical utility in promoting a knowledge of them? These questions are pertinent. Yet no one doubts the value of the science of physiology, and the benefit to be derived from the study of it. The objection, however, against both sciences is in principle the same; it has as much force when urged against the necessity of physiology, as when urged against the necessity of logic.

In both cases, the objection overlooks a fixed fact in human nature. With the development of consciousness and will, there arises a strong tendency, and if not eradicated or overruled, a resistless tendency to violate all the laws of both body and mind. This tendency is the effect or

operation of the principle of moral evil, or sin, which, though foreign to the original constitution of man, nevertheless, as a consequence of the fall, lies in the core of his being, and perverts the activity of all his powers. We say of *all* his powers; and the perverting influence is more manifest even in the higher, than in the lower powers; more manifest in the mind than in the body; yet there is no function, whether low or high, whether of the body or of the mind, which is not directly affected by the disordering force of this abnormal principle.

The principle operates unconsciously as well as consciously. An infant, even, evinces dispositions and may contract habits which contravene the laws of its nature. A man may transgress the laws of bodily health when he endeavors to comply with them. So, too, of reasoning. A man may assume false instead of true premises, and reason from them without any sense of his error. He may not only, but he is liable to do so continually. Or he may lay down true premises, and then reason falsely, and draw a false conclusion, whilst he believes the process of deduction, and the result of the process, both to be legitimate. Nay more. There is ground even

to believe that fallacious reasoning is much oftener practised unconsciously than consciously. Paralogy is more common than sophistry.

That man violates the laws of his nature knowingly, that he inflicts wilful injuries upon his body, and often endeavors to deceive by sophistical reasoning, is a fact so generally admitted that an attempt to establish it, or even a direct affirmation of it, is entirely superfluous.

Hence the practical necessity of logic. The laws of thinking, and the legitimate process of deduction, must be thoroughly understood, and the mind itself undergo a logical discipline, in order that a man may both knowingly and instinctively conform to the demands of sound reasoning, and be able besides to detect errors in others, whether committed designedly or undesignedly. A man of acute and well-balanced judgment may, indeed, acquire logical discipline of mind by the systematic and thorough study of language, of mathematics, and of the sciences in general, and thus become a correct reasoner, without studying the science of logic itself; yet he will be more or less at a loss when confronted by the subtle sophistry of those who have mastered the science, or when required to con-

firm the truth of his own conclusions, or defend the validity of his own reasoning.

The necessity of logic becomes apparent also under another view. The innate tendency of the reason to know scientifically is directed upon self under every aspect (§§ 8 and 11); not only upon body, soul, and spirit, not only upon the nature and relations of the reason, but upon the categories and laws of its activity. The reason is irresistibly prompted to inquire concerning itself, not only what is it? and whence is it? but what is thinking? and *how* does the reason think? It seeks spontaneously to evolve a scientific knowledge of the forms under which its legitimate processes are conducted. Nor can this tendency be resisted or suppressed without doing violence to rational nature.

There must, therefore, be some system of logic—some method of thinking which is held to be right and proper,—whether men choose to make the reasoning process the subject of patient and thorough investigation or not. The question, in fact, is not whether there shall be a science of logic or not; but whether the system shall be false or true, crude or well-digested, floating in the general mind, or regularly wrought out and

reduced to writing. This is the real issue. For the reason is so constituted that it cannot but have some method of thinking, which it assumes to be correct.

Thus the necessity of logic arises, on the one hand, from the presence and perverting influence of the principle of moral evil, and, on the other, from the constitution of the human reason.

§ 50.

THE STUDY OF LOGIC.

The value of the science depends, however, upon the character of the system, and the manner in which it is studied.

That a system of logic may answer its purpose, it must correspond to the demands of the reason. It must exhibit the elements, and the process of reasoning, from a right point of observation, and in a way that is determined, not by any arbitrary arrangement, or by any notions of convenience, but by the laws of thinking themselves. For the laws of thinking are both the object and the plastic power of a true system. Determined thus in all its parts, and as a whole, by the laws of

thinking, the system becomes a logical system of logic. And it is such a system only that is really valuable to the student; none other. An illogical system is rather a hindrance to right reasoning than a deliverance from the bondage of error.

If, for instance, analysis and synthesis be selected, and the treatment of the subject be compressed within these categories, the system may indeed possess value, but it will be mechanical rather than legitimate and free; for there is a *genesis* of thought also; a category which includes and unites analysis and synthesis; and which cannot be ignored without involving a radical defect in the science of logic. We may take a boy to a ship, give him a view of it as a whole, then take it apart piecemeal, and thus pass through the analytic process; afterwards, we may set part to part regularly until the vessel is reconstructed and complete; and thus pass through the synthetic process. Taken through this double process, the boy's knowledge may be valuable; but he has not been made a ship-builder, nor has he become a competent judge of ship-building. In order to become either, he must be taken to the dock, and there taught to work the parts of the

ship out of the rude material, and put them together in regular order, according to the approved principles of the art. If he possess the requisite ability, and pass through this course of productive labor, he may become an excellent workman, and a competent judge of a ship. Not otherwise.

Logic is a parallel case. We may endeavor to give a student a view of logic as a whole, and then, resolving it into its constituent elements, may carry him through the process of analysis. When this is done, we may approach the subject synthetically, take up one element after another, and thus form the science, part by part, until the whole system is reconstructed. This double exercise may be of no little advantage; but it cannot make a man a thorough logician; and for two reasons. The first is, that the process is impracticable. An intelligent analysis presupposes a clear comprehension and some scientific knowledge of logic. This a beginner does not possess. Nor can he acquire it but by means of a thorough study of the subject. A learner cannot, therefore, begin the study of logic to real purpose by analyzing it. It is the teacher that may analyze; the learner follows mechanically.

Another and the principal reason is, that a

system of logic which begins with the analytic process, does not correspond to the order of organic development, either in man or in any living thing. Nor does it correspond to the objective order of thinking. The reason begins to be in a germ, and develops itself in all its parts, in virtue of the power of its own life. It becomes a complete whole consisting of manifold powers, or faculties, as a consequence of its normal development. This, too, is the order of thinking as determined by the laws of the reason. The reason seeks first to lay hold of an object in its principle; and then to reproduce its constituent parts in thought, and to know it, as a whole, under the determining influence of this principle. Until the reason has thus reproduced its object, it does not understand it. State some new fact to a child, and it inquires instinctively: why is this so? I cannot understand it. The child speaks philosophically; it cannot understand, until it sees the thing in its principle, or cause, or ground—until it knows that on account of which the thing is what it is. Nor can the developed reason comprehend any object, nor understand any science or system, unless it sees the object or system in relation to the ground or

principle from which it grows forth, and by which it is determined. Beginning with a principle, and following the order which that principle determines, the reason acquires clear and satisfactory knowledge, because the order of its activity corresponds to the demands of its nature.

A system of logic, therefore, that, assuming a complete view of the subject, first treats it analytically, and then synthetically, does not discipline the mind logically, for it contravenes the natural order of thinking, the order which the nature of the reason itself determines. It imposes a method of thought which serves to shackle the free, legitimate activity of the reason, rather than to invigorate it and deliver it from all foreign influences. Hence it so often happens that men of strong minds break away from the forms they had learned in their youth, and adopt a method of thought which is their own, and better adapted to their inmost wants.

A logical system of logic proceeds genetically. Beginning in a principle, it develops all the parts as the constituents of an organic whole. It is but a projection of the legitimate action of the normally developed reason into objectivity. The reason recognizes the counterpart of its own

spontaneous order in the system, and embraces it instinctively; for it corresponds, in every part and as a whole, to what the life-power of the reason determines and requires. Such a system is not to the reason what manacles are to the hands and the feet, but what a strong framework of bone and a healthy muscular tissue is to the principle of life lodged in the human body—the product of its intrinsic energy, and the condition of its most efficient action.

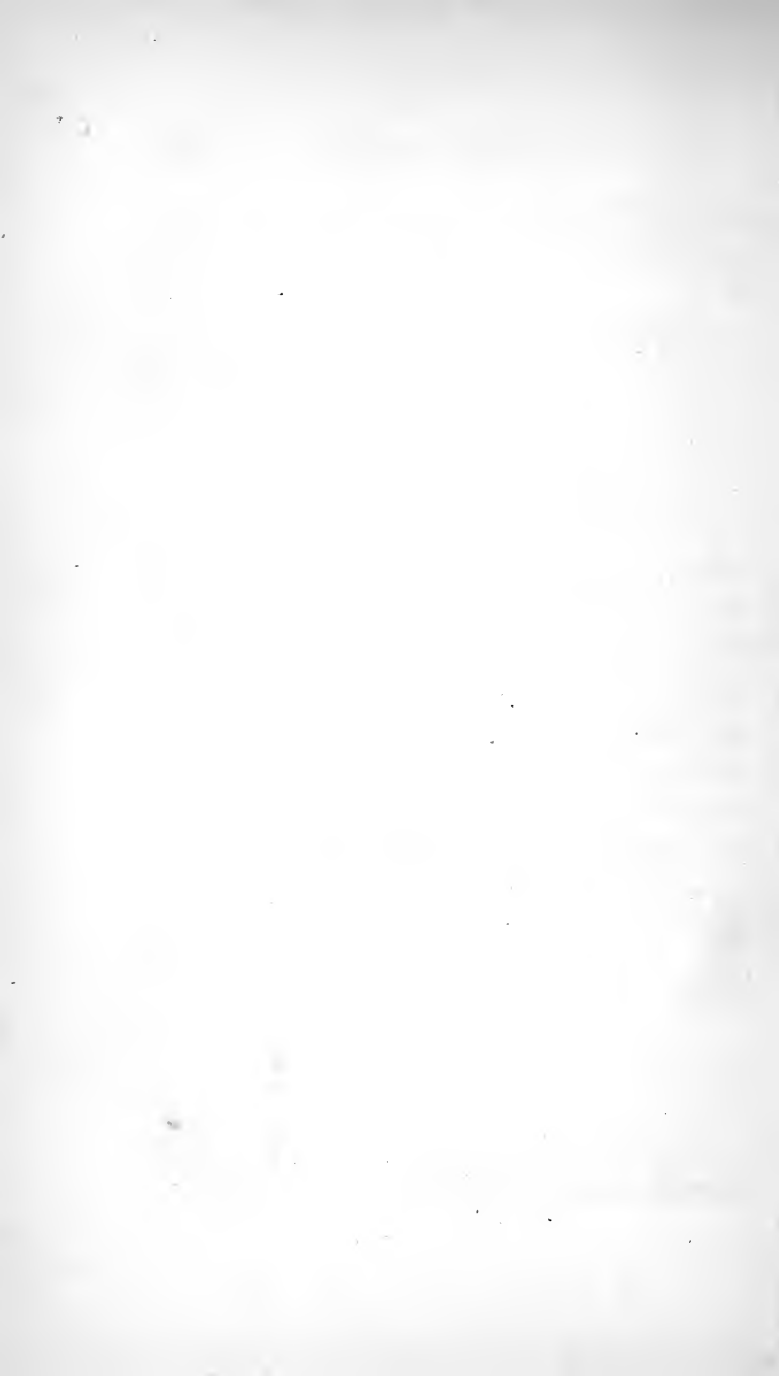
The study of a logical system of logic does not, however, as a matter of course, produce a logical thinker. This result depends upon the manner in which a scientific system is taught and studied. It can answer no good purpose to study it mechanically. The design of logic is not to supply forms of thought which are to be carefully treasured up in the memory and used profitably as occasion may require. But the design is to discipline the mind to think agreeably to the laws of thinking. This design can be accomplished only by a thorough mastery of the science. It must not only be comprehended, but so well digested, and so entirely reproduced, that it becomes identified with the spontaneous activity of the reason. Thus appropriated, a scientific sys-

tem of logic contravenes the perverting tendency of the abnormal principle of sin, moulds the activity of the reason according to the determinative force of its own laws, and imparts vigor and consistency to the power of legitimate ratiocination. It meets the wants of the reason as bread meets the wants of the body. And as the body uses its renewed strength and its invigorated muscles with the utmost freedom, so does the reason use its disciplined powers and its acquired forms of thought, in fullest harmony with the demands of its own nature.

Pursuing the study of a scientific system of logic according to this method, the mind of a learner receives a normal training; and he acquires the habit of thinking logically on every subject. There is no sense of restraint; but he conforms both to the principles of the system and to the laws of the reason in simple obedience to the natural impulse to think.

AN
OUTLINE TREATISE
ON
LOGIC.

FROM
THE GERMAN OF DR. JOSEPH BECK.



TREATISE ON LOGIC.

INTRODUCTION.

§ 1.

LOGIC is the science that unfolds the laws of thinking.

The term Logic—λογική sc. επιστήμη or τέχνη—is derived from λόγος, which means first *word*, and then the faculty of thinking, because a word is the expression of a thought. Among the ancients it was called Dialectics—διαλεκτική. Aristotle may be called the father of Logic viewed as a science, as he first treated the subject systematically in a work entitled Organon.

§ 2.

THE OBJECT OF LOGIC.

The object of Logic is thinking. Thinking may be considered under a twofold aspect:

1. *As it is in its own nature and according to its own laws.* As such it is abstracted from all contents or matter. This is *pure* thinking.

2. As it is in its relation to the *contents* or subject-matter to which forms of thought are applied. As such, it is *applied* thinking or knowledge.

Notice the difference between *formal* thinking and *material* thinking. Formal thinking is merely a process that corresponds to the laws of thought, but does not possess objective truth. Material thinking apprehends and reproduces objective truth, or a reality, according to the laws of thought.

§ 3.

PURE AND APPLIED LOGIC.

Hence Logic is divided into Pure Logic and Applied Logic.

1. Pure Logic unfolds the laws of thinking without reference to any contents.

2. Applied Logic unfolds the laws of thinking in their application to the object of consciousness, namely, to *being* in general; and ascertains, accordingly, what relation thinking sustains to its

contents; in other words, it ascertains the *origin*, the *conditions*, and the *limits* of human knowledge.

The relation of Pure Logic to Applied Logic resembles the relation of pure mathematics to applied mathematics. Logic may likewise be divided into *natural* and *artificial*; *theoretical* and *practical*; *analytical* and *synthetical*, etc.

Applied Logic is, in this sense, a part of the Doctrine of Knowledge (*Erkenntnislehre*), in which it is treated according to the essential laws of being.

§ 4.

THE END OF LOGIC.

The ultimate end of all thinking, and in consequence also, of all Logic, is truth.

1. Truth is the conformity of thinking to its own laws: *formal* truth.

2. Truth is the conformity of thinking to *being*: *material* truth.

Pure Logic unfolds the laws of formal truth. Applied Logic unfolds the laws of material truth. The one teaches the laws which determine the

conformity of thinking to itself; the other teaches the laws and the limitations which determine the conformity of thinking to being.

In this discussion, *being*, viewed as the object of thinking, is always taken in its most general, and not in any specific sense. As something specific, it becomes the subject of particular sciences.

Inasmuch as the laws of *thinking* and of *being* correspond to each other (a principle that may here be taken for granted), material truth is subordinate to formal truth; that is, nothing is true objectively which contradicts the laws of formal truth, and whatever conforms to these laws cannot be false objectively. But formal truth does not include the ground of material truth; that is, whatever conforms to the laws of formal truth is not, for this reason alone, true objectively.

The validity and the limitations of all human thinking depend upon these propositions.

§ 5.

THE RELATIVE POSITION OF LOGIC.

As the science of Logic unfolds and establishes

the laws of human thinking, and of human knowledge, and thus exhibits the negative condition of all truth, it constitutes,

1. The first part of philosophy in general, or of the science which treats of the original ground of things.

2. It constitutes the requisite propædeutics to all the particular sciences ; because the particular sciences depend on logic, both as to their proper treatment and their formal truth.

What has now been said illustrates the value and importance of logic. Logic serves to awaken a distinct consciousness of the laws of thinking ; and thus teaches us to avoid errors ourselves, and to detect the incorrect and the false in the opinions and reasonings of others. It is, at the same time, the formal *organ* and *canon* of all other sciences. Viewed in this light, the eulogy of Cicero is true : *Ars omnium artium maxima*.

§ 6.

PURE LOGIC.

The office of Pure Logic is twofold :

1. To develop the simple elements of thinking.
The Doctrine of Elements.

2. To unite these elements into one whole, or to exhibit them in a systematically connected train of thought. The Doctrine of Method.

Pure Logic is, therefore, naturally divided into two parts.

PART FIRST.

THE DOCTRINE OF ELEMENTS.

§ 7.

DIVISION.

The Doctrine of Elements,

1. Sets forth the fundamental laws of thinking; and,

2. Applies these laws to the fundamental operations of the mind; namely,

1. To Conceptions.

2. To Judgments.

3. To Reasoning.

CHAPTER I.

THE FUNDAMENTAL LAWS OF THINKING.

§ 8.

THE fundamental laws of thinking, coming to view as the immediate facts of consciousness, and constituting the conditions upon which the legitimate character of all reasoning depends, are the following:

1. The Law of Identity.
2. The Law of Contradiction.
3. The Law of the Excluded Third.
4. The Law of the Rational Ground.

§ 9.

THE LAW OF IDENTITY.

The Law of Identity (*principium identitatis*) is expressed by the formula: A is A, $A=A$. The

letter A represents any object of thought or logical subject.

The meaning of the formula is twofold:

1. When A is taken, it must be considered as such distinctly, and not as if it were something else. This is the principle of affirmation. Washington (A), is Washington (A); $A=A$, and not Napoleon, B.

2. A is identical with itself, and with the totality of its parts. (Principle of Identity.) If the particulars $a+b+c$ are contained in the object A, then the object, a unity, and the particulars are identical: to affirm the one is to affirm the other also; that is, to affirm the *object* is to affirm the *particulars* included in it.—Man (A) is a sentient (a) rational (b) creature (c), that is, $A=a+b+c$.

As the law of identity is not only a law of thinking, but also a law of being, it contributes, in an especial manner, to the development and extension of human knowledge, and is susceptible of great variety of application. From it the following maxims may be deduced: a whole is identical with its parts; a subject with its qualities; a conception with its attributes or marks; a genus with its species, etc.

§ 10.

THE LAW OF CONTRADICTION.

The Law of Contradiction is expressed by the formula: A is not= $\text{non } A$. *Principium contradictionis*.

The law of identity and the law of contradiction are but different forms of the same principle; the latter, however, expresses the principle negatively, and involves the requisition: Do not let a contradiction have place in your manner of thinking.

This law is accordingly the principle of negation. It determines the correctness of any proposition in a negative way; that is, the contradictory opposite of that which has been accepted as truth on sufficient grounds must necessarily be *not true*; in other words, it must be false. From the truth of a given thought we may, therefore, deduce the falsity of its contradictory.

§ 11.

THE LAW OF THE EXCLUDED THIRD.

The Law of the Excluded Third is expressed by

the formula: A is, or A is not. *Principium exclusi tertii*.

The sense of the formula is this: Whenever the reason thinks, it either affirms or denies, it says that A is, or A is not. No thought or proposition can assume any other form. *Non datur, excluditur tertium*.

The law of identity and the law of contradiction are united in the law of the excluded third. Hence it of necessity determines every act of the reason, according to one or the other of the only two possible forms of thinking, that of affirmation or of negation.

In virtue of the law of the excluded third, we may reason from the falsity of one proposition to the truth of its contradictory.

§ 12.

THE LAW OF THE RATIONAL GROUND.

The Law of the Rational Ground—*principium rationis*—makes this demand: In thinking, do not allow any thought to be received as true without sufficient ground. The term *ground* is

used either to denote that which determines the understanding in accepting something as truth, under an affirmative or a negative form; or to denote some given thought or proposition from which the understanding deduces whether some other thought or proposition is true or not true. The latter proposition is called a *consequence*, and the relation between ground and consequence is called *logical connection*, or logical sequence.

We must distinguish carefully between *ground*—ratio, the reason of knowledge—as principium cognoscendi, and *cause*—causa, the cause of real existence—as principium essendi.

CHAPTER II.

CONCEPTIONS.

§ 13.

DEFINITION OF CONCEPTION.

A CONCEPTION—notio, conceptus—is the idea, the subjective form, of the real nature of any object of the understanding; or the apprehension of the unity of its essential attributes. We may consider a conception,

1. As it is in itself, or
2. In comparison with other conceptions.

The word *attributes*—notæ—denotes the constituent parts or qualities of an object of the understanding; or, to speak more accurately, it signifies an apprehension or the cognitions of these constituent parts, the union of which, in a conception, make a whole in the sphere of consciousness.

SECTION I.

A CONCEPTION AS IT IS IN ITSELF.

§ 14.

A CONCEPTION IN GENERAL.

EVERY conception is a general term, which includes, on the one hand, a variety of attributes, and on the other, comprehends a variety of objects. The attributes included are called the *contents*, and the objects comprehended, the *extent* of a conception. Hence, we may consider a conception in regard to,

1. Its Contents—intensive magnitude.
2. Its Extent—extensive magnitude.
3. Both Contents and Extent simultaneously.

1. THE CONTENTS OF A CONCEPTION.

§ 15.

CONTENTS OF A CONCEPTION DEFINED.

The word *contents*—complexus—denotes that which a conception contains, that is, the sum

total of all the attributes belonging to an object, a knowledge of which we acquire by the process of abstraction.

To the conception, expressed by the term *body*, belong the attributes of extension, weight, elasticity, etc.; to that expressed by *triangle*, the constituent elements: a *surface* circumscribed by *three lines*.

§ 16.

ESSENTIAL AND ACCIDENTAL ATTRIBUTES.

The attributes of a conception may be such as do necessarily, or such as do not necessarily, belong to it. They may be,

1. *Essential*—notæ essentiales. Without them, the conception, as the union of these attributes in the sphere of consciousness, cannot be formed: *e. g.*, reason and sensibility are necessary to the conception, *man*. Or, they may be,

2. *Accidental*—notæ accidentales, denominated also *modi*, states or qualities. Without them, the conception, viewed as the union of these attributes, can be formed: *e. g.*, the attributes, refinement, virtue, or vice, are not necessary to the conception, *man*.

The correctness of a conception depends upon an accurate distinction between essential and accidental attributes. If we include accidental attributes, the conception becomes too *narrow*: *e. g.*, man is a refined, sentient, rational creature. If we omit essential attributes, the conception becomes too *broad*: *e. g.*, man is a rational and spiritual being.

Attributes may also be divided into internal and external, general and particular, positive and negative.

§ 17.

SIMPLE OR COMPOUND CONCEPTIONS.

A conception is also said to be simple or compound.

1. It is *simple* when, by a process of continued abstraction, it is not possible to discover different attributes: *e. g.*, being, nothing, thing.

2. The conception is *compound* when it is possible to distinguish its attributes from each other: *e. g.*, man, animal, plant.

2. THE EXTENT OF A CONCEPTION.

§ 18.

THE EXTENT OF A CONCEPTION DEFINED.

The *extent* of a conception denotes those things which it comprehends; that is, the sum total of the objects to which it refers.

The objects to which a conception refers are said to be *subordinate* to the conception. The conceptions, plant and animal, are subordinate to the more general conception, organic nature; tree and flower, to plant.

§ 19.

GENUS, SPECIES, AND INDIVIDUAL.

As the extent of a conception may be more or less comprehensive, the following distinctions must be made:

1. When a given conception comprehends other conceptions mediately, it is a *genus*. A genus accordingly embraces certain conceptions to which others are in turn subordinate.

2. When a given conception comprehends

other conceptions immediately, it is a *species*. A species accordingly embraces certain conceptions to which no others are in turn subordinate.

3. Those conceptions to which no others are subordinate, are immediate, their objects being single things, or individuals.

A genus is something relative, not absolute; for a removal of attributes, by a process of continued abstraction, enables us to rise successively from one genus to another, from a higher to a still higher one, until we arrive at the highest (all-comprehending) conception of all, than which a more comprehensive one cannot be formed. This last is the conception of *absolute being*.

3. COMPARISON OF THE CONTENTS AND EXTENT OF A CONCEPTION.

§ 20.

THE RECIPROCAL RELATION.

A comparison of the contents and extent of a conception with each other, reveals the following reciprocal relation :

The greater the contents, the smaller the extent,

and inversely, *the smaller the contents, the greater the extent.*

The reason is this: to many different objects but few attributes belong in common; on the contrary, many attributes belong in common to but few different objects.

§ 21.

VARIATION IN THE EXTENT OF A CONCEPTION.

The extent of a conception is *lessened* or circumscribed by augmentation of its contents, that is, by the addition of an attribute. The conception, *book*, becomes less comprehensive by the addition of *printed*. 1. A book; 2. A printed book.

On the contrary, the extent of a conception is *enlarged* by the omission of one or more attributes. The conception, *a wise white man*, becomes more comprehensive by the omission of the attribute, *wise* or *white*, and still more so by the omission of both.

§ 22.

ADDENDUM.—DISTINCTNESS AND ACCURACY OF A
CONCEPTION.

Distinctness and accuracy are determined by the degree of our knowledge in respect to the contents and extent of a conception.

A conception is *distinct* when we have such a clear consciousness of its contents and extent in general that we can distinguish it, *as a whole*, definitely from all other conceptions.

A conception is *accurate* when we have a clear consciousness of the particulars belonging both to its contents and its extent.

Distinctness and accuracy, however, are susceptible of various degrees of perfection. If both be very imperfect, a conception becomes dark and confused.

We may, therefore, *explain* a conception by analyzing its component parts:

1. By analyzing its contents in order to distinguish its attributes. Definition.

2. By analyzing its extent in order to discover its species and individuals. Classification.

The first analysis is a process of intensive, the second, a process of extensive, explanation. A

simple conception may be explained extensively, but not intensively.

SECTION II.

COMPARISON OF CONCEPTIONS.

§ 23.

THE comparison of two or more conceptions with each other, presents the following points for consideration :

1. Identity and Non-Identity, or Difference.
 2. Agreement and Opposition.
 3. Subordination and Co-ordination.
-

1. IDENTITY AND NON-IDENTITY, OR DIFFERENCE.

§ 24.

When we compare the contents of one conception with those of another, we perceive that these contents are either *the same*—identical, or *not the same*—non-identical.

The contents of two conceptions are the same,

or identical, when they possess the same attributes. If the conception $A=a+b+c$, and the conception $B=a+b+c$, then A and B are the same conceptions—*conceptus identici*.

Such conceptions are also called *equivalent*—*conceptus æquipollentes*, or convertible—*conceptus reciproci*, because they include the same particulars, and can therefore be taken for each other mutually.

No conceptions are perfectly identical; for, should two or more include the same attributes precisely, it were impossible to distinguish the one from the other; and the difference would, in consequence, pertain merely to verbal expression: *e. g.*, triangle and a three-sided figure; star and a heavenly body; man and a sensuo-rational creature.

Although synonyms are words which signify the same thing, they are nevertheless not perfectly identical conceptions; for they apprehend the same object under different aspects, and in different relations.

§ 25.

OF AFFINITY AND DIFFERENCE.

All *non-identical* conceptions sustain to each other the relation of *affinity* or of *difference*:

1. Of affinity, when they have at least one attribute in common.

2. Of difference, when there is at least one attribute which they have *not* in common.

The terms *affinity* and *difference*, as applied to conceptions, have only a relative signification, inasmuch as the degree of either may be great or small: *e. g.*, Let $A=a+b+c+d$, and $B=a+b+c+f$; or let $A=a+b+c+d$, and $B=a+e+f+g$. In either case A and B are both different and in affinity.

Query. Are absolutely different conceptions possible?

Conceptions in affinity are called *similar* when those attributes which they have in common, exceed those in number which they have not in common: *e. g.*, triangle and quadrangle. They are called *homogeneous* when they belong to the same genus, and *heterogeneous* when they belong to different genera: *e. g.*, horse and camel are homogeneous, horse and robin heterogeneous conceptions.

Conceptions in affinity are called *cognate* when they possess some essential attributes in common: *e. g.*, man and animal. They are called *incognate* when they possess no essential attributes in common: *e. g.*, snow and linen.

2. AGREEMENT AND OPPOSITION.

§ 26.

Two or more conceptions are in agreement or congruous—*conceptus congruentes*—when they can together be predicated of the same subject; on the contrary, they are in opposition or repugnant—*conceptus repugnantes*—when they cannot thus be predicated.

Smooth, white, transparent, brittle, may together be predicated of *glass*, but not of *iron*.

Wisdom and kindness may together be predicated of a *man*, but not virtue and vice of *Washington*. Thus, also, level and mountainous, round and square, rest and motion, triangle and quadrangle, etc.

§ 27.

CONTRADICTORY AND CONTRARY OPPOSITION.

The opposition of conceptions is twofold:

1. It is purely *negative* when given conceptions sustain a relation to each other like A and non A; that is, when one is the simple negation of

the other. Contradiction—*oppositio contradictoria*.

2. It is *positive* when given conceptions sustain a relation to each other like A and non Ax; that is, one conception is not merely the negation of the other, but possesses also some positive property peculiar to itself. Antagonism—*oppositio contraria*.

Contradictory conceptions are such as: white and not white, black and not black, rich and not rich, virtuous and not virtuous.

Contrary conceptions are such as: white and black, rich and poor, virtuous and vicious, learned and ignorant, courageous and cowardly.

3. SUBORDINATION AND CO-ORDINATION.

§ 28.

Subordination and co-ordination pertain to the relation which two or more conceptions bear to each other as regards their extent.

Convertible conceptions are equal in extent; hence they cover or involve each other mutually—*se invicem involvunt*—as *e. g.*, a living being and an organic being.

§ 29.

SUBORDINATE CONCEPTIONS.

Of two conceptions one is *subordinate* to the other when the second comprehends the first as a part of its extent. The subordinating conception is called the *superior*,—*conceptus superior*—or more general, and the subordinate one, the *inferior*,—*conceptus inferior*—or less general, conception: *e. g.*, quadruped is subordinate to animal.

Take the conceptions *tree* and *fir-tree*. The former is superior and the latter inferior; if the contents of the conception *fir-tree* be enlarged by the addition of the attribute *black*, then *black fir-tree* will be inferior, and *fir-tree* superior.

§ 30.

CO-ORDINATE CONCEPTIONS.

Two or more conceptions are *co-ordinate* when they are subordinate to a superior conception in like degree; the superior conception being, in

the same measure, the common attribute of the inferior conceptions.

Oak, fir, ash, and pine, are co-ordinate conceptions, because they are, in like degree, subordinate to the conception *tree*. But *fir-tree* and *animal* are not co-ordinate, because, although both are comprehended in the extent of the conception, *organic being*, yet they are subordinate to it in different degrees. *Animal* is co-ordinate to *plant*.

Co-ordinate conceptions exclude each other; for this reason they are also called *disjunctive*. *Circle* and *square* are mutually exclusive; neither comprehends the other; but both are comprehended in the extent of the conception, *figure*. *Husband* and *wife* are disjunctive, but belong to the more general conception of *humanity*.

Disparate conceptions are those which the mind cannot associate together as a pair: *e. g.*, rationality and animality, hand and foot.

Disjunctive conceptions constitute a contrary opposition among objects belonging to the *extent* of a conception.

Disparate conceptions constitute a contrary opposition among objects belonging to the *contents* of a conception.

§ 31.

ART OF CLASSIFICATION.

Upon these laws of subordination and co-ordination depend the art of classification, to which the highest importance attaches ; as it enables the understanding to reduce the boundless mass of human knowledge to order and system, and thus to survey and become master of the whole.

CHAPTER III.

JUDGMENTS.

§ 32.

WE may consider a Judgment,

1. As it is in its own nature.
2. In comparison with other Judgments.

SECTION I.

A JUDGMENT AS IT IS IN ITS OWN NATURE.

§ 33.

DEFINITION OF JUDGMENT.

A JUDGMENT is an act of the understanding by which it connects a quality, mode, or state of being—property, activity, or passivity—with a particular subject, and thereby determines the

mutual relation of both. The following questions, therefore, require consideration :

1. What relation does the predicate bear to the contents of the subject? Quality.

2. What relation does the predicate bear to the extent of the subject? Quantity.

3. In what manner does the understanding connect the predicate with the subject? Relation.

4. In what manner does the object determine the understanding in the act of judging? Modality.

The *matter*, or contents, of a judgment consists of the two conceptions which are united in it by the understanding. The manner in which the union is effected constitutes the *form* of a judgment; the form is expressed by the copula. Of this it behooves Logic to treat. The logical formula of a judgment is:

$$S=P.$$

$$S=nP.$$

1. QUALITY.

§ 34.

THE QUALITY OF JUDGMENTS.

Quality pertains to the contents of the subject

in their relation to the predicate. The two conceptions which the understanding unites in a judgment, may either be in agreement or in opposition. Thus arises a division of judgments into *affirmative* and *negative*.

1. A judgment is *affirmative*—*judicium affirmans*—when the copula asserts the agreement of the predicate with the subject.

2. A judgment is *negative*—*judicium negans*—when the copula asserts the opposition of the predicate to the subject.

Negation, accordingly, does not lie in the predicate, but in the copula.

The following examples belong to a different category: Man is not mortal, and, man is immortal; John is not wise, and, John is unwise.

§ 35.

A JUDGMENT, AFFIRMATIVE OR NEGATIVE.

Every judgment must either be affirmative or negative. According to the law of the excluded third, a different case is impossible.

The so-called *limiting* or *restrictive* judgments are such as contain a negation in the predicate-conception. *E. g.*, God is infinite. The human soul is immortal. In respect to their contents, they are negative; but in respect to form, they are affirmative. Logically considered, therefore, they belong to the class of affirmative judgments. These judgments are also called *infinite* or more properly *indefinite*, because, by means of a predicate involving a negative, the subject is transferred from the sphere of definite conception to that of indefinite conception, a sphere to which it does not belong.

2. QUANTITY.

§ 36.

THE QUANTITY OF JUDGMENTS.

Quantity pertains to the extent of the subject in its relation to the predicate. As the predicate may refer to the whole extent of the subject, or to only a part of it, or to an individual, we get a division of judgments into *general*, *particular*, and *individual*.

1. A general judgment—*judicium universale*, or, *generale*. *E. g.*, All men are mortal.

2. A particular judgment—*judicium particulare*, or, *speciale*. *E. g.*, Some men are intelligent.

3. An individual judgment—*judicium singulare*. *E. g.*, John is intelligent.

In a logical point of view, individual judgments coincide with general judgments, because, in both cases, the predicate belongs to the whole extent of the subject; *e. g.*, All men are fallible, and, Socrates is the wisest Greek.

The words denoting quantity, or the signs—*signa quantitatis*—used in general judgments, are: *all, each, every*, and the like.

The signs of particular judgments are: *many, some, few*, etc.

The signs of individual judgments are either proper names, or some word, or words, used as their substitutes.

§ 37.

If judgments are considered both as to quantity and quality at the same time, they are called General Affirmative, and General Negative, Par-

icular Affirmative, and Particular Negative judgments.

3. RELATION.

§ 38.

THE RELATION OF JUDGMENTS.

Relation pertains to the manner in which the understanding connects the predicate with the subject. As this connection may be unconditional, conditional, or indifferent—neither conditional nor unconditional—we obtain a division of judgments into *categorical*, *hypothetical*, and *disjunctive*.

§ 39.

CATEGORICAL JUDGMENTS.

A categorical judgment is one which expresses the internal connection, or synthesis, between the subject and the predicate, according to the law of identity, or of contradiction, absolutely; *e. g.*, God is just. Man is not perfect.

The term *categorical* is derived from *κατηγορία*,

and this from *κατηγορεῖν*, which is equivalent to the Latin, *predicare*, or to the German, *aussagen*, to predicate.

§ 40.

HYPOTHETICAL JUDGMENTS.

A hypothetical judgment is one which expresses the internal connection, or synthesis, between subject and predicate, according to the law of causation, or the law of the rational ground; that is, the synthesis presupposes a condition in the judgment—*ὑποθεσις*—as the ground upon which the synthesis rests; *e. g.*, If God be just, He will reward the righteous and punish the wicked.

A hypothetical judgment consists consequently of an antecedent and a consequent.

1. The antecedent—*antecedens*, *ὑποθεσις*,—contains the (conception of the) subject as the *ground* of the predicate.

2. The consequent—*consequens*, *thesis*—contains the (conception of the) predicate as the *consequence* of the subject.

These two grammatical members constitute

but one logical judgment. The verbal indications of these members are generally, though not exclusively, the particles, *if—then*.

The essential nature of a hypothetical judgment is based upon *logical dependence*, that is, upon the necessary connection between the two members of the sentence, viewed as ground and consequence. Hence, we must distinguish it carefully from such sentences as have merely the grammatical *form*, but do not possess the *nature* of a hypothetical judgment. Instead of logical dependence, the sentence may express only simultaneousness, or some other accidental relation; *e. g.*, When the swallows return, summer comes.

There is a sense in which categorical and hypothetical judgments are allied to each other: both predicate the *contents* of the subject, the former as finished, the latter as finishing. *E. g.*, The diligent student is rewarded. If a student be diligent he will be rewarded.

§ 41.

DISJUNCTIVE JUDGMENTS.

A disjunctive judgment is one which expresses

the internal connection, or synthesis, between the subject and predicate, according to the law of the excluded third. It contains two or more members that mutually exclude each other—*membra disjuncta*;—but one member, not both or all, can be true. The disjunction may lie in the subject or in the predicate.

1. The disjunction may lie in the *subject*. Several disjunctive subjects may stand connected with one predicate; *e. g.*, The Greeks, or the Romans, or the Jews, were the most important nation of antiquity.

2. The disjunction may lie in the *predicate*. The predicate contains the disjunctive members: *e. g.*, Meteorolites proceed either from the atmosphere, or from the moon, or from mundane space.

To avoid fallacious reasoning, it is necessary to notice the following particulars:

1. The several members of a disjunctive judgment must exclude each other; in other words, they must contain conceptions in opposition. The following sentence, therefore, is not a disjunctive judgment: John is either rich or handsome; for he may be both.—The grammatical form is commonly indicated by the conjunctions: *either—or*.

2. The validity of a disjunctive judgment depends upon an accurate specification of all the possible members.

3. A disjunctive judgment analyzes the extent, not the contents, of a conception.

4. A hypothetico-disjunctive judgment is not a distinct form of thought, specifically different from a disjunctive judgment; for the disjunctive relation of the members is the essential matter in both. The following propositions, for example, are equivalent:

Hypothetico-disjunctive. If the earth be not a planet, it must be a fixed star, or a comet.

Disjunctive. The earth is either a planet, or a fixed star, or a comet.

§ 42.

ADDENDUM.—PARTITIVE JUDGMENTS.

It is necessary to draw a line of distinction between a disjunctive and a *partitive*, or *divisive*, judgment. A judgment is said to be partitive, because it sets the several species of a genus as predicates over against the subject. The genus constitutes the subject, and the several species,

the predicates: *e. g.*, Animals are either (partly) males or (partly) females. Figures are, some triangular, some quadrangular, some polyan-
gular, and others circular. Plants, as well as animals, are living beings.

A partitive judgment, it is true, bears some resemblance to a disjunctive judgment; but the resemblance pertains only to their form, not to their essential nature. In reality, the two are specifically different. The predicates, being co-ordinate conceptions, are equally exclusive in both; but in a partitive judgment all the conceptions are attributed collectively to the subject, whilst in a disjunctive judgment such an agreement of all the predicate-conceptions with the subject is denied.

A partitive judgment is, strictly speaking, nothing more than a compound categorical judgment. It asserts the agreement of several predicates with one subject under a disjunctive form.

4. MODALITY.

§ 43.

THE MODALITY OF JUDGMENTS.

Modality pertains to the manner in which the

understanding is determined by an object in the act of judging. As an object may determine the understanding to regard the synthesis or connection between subject and predicate as only possible, or actual, or necessary, we get a division of judgments into *problematical*, *assertory*, and *apodictical*.

§ 44.

PROBLEMATICAL, ASSERTORY, AND APODICTICAL JUDGMENTS.

A *problematical* judgment, from προβαλλειν, is one which declares the agreement of the predicate with the subject to be *possible*. The grammatical form is: *it may be*; e. g., The planets may be inhabited.

An *assertory* judgment, from asserere, is one which declares the agreement of the predicate with the subject to be *actual*. The grammatical form is: *it is*; e. g., The earth is round. Man is fallible.

An *apodictical* judgment, from αποδεικνυναι, is one which declares the agreement of the predicate with the subject to be *necessary*. The gram-

matical form is: *it must be*; e. g., God must be just. Every effect must have a cause.

SECTION II.

COMPARISON OF JUDGMENTS.

§ 45.

A COMPARISON of two or more judgments pertains to the peculiar relation they sustain to each other, in virtue of the contents and extent of the conceptions which they severally contain. Hence we are led to consider,

1. The Identity and Difference of Judgments.
 2. The Agreement and Opposition of Judgments.
 3. The Co-ordination and Subordination of Judgments.
 4. The Conversion and Contraposition of Judgments.
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1. IDENTITY AND DIFFERENCE.

§ 46.

IDENTICAL JUDGMENTS.

Two or more judgments are said to be iden-

tical—*judicia identica*—when they have the same matter and the same form. Vid. § 33. They unfold the same thought, but in different language, and for this reason are *equivalent*—*judicia aequipollentia, paria*. *E. g.*, God is almighty; and, The Supreme Being can do all things.

But identical judgments are not necessarily a tautology; for, although the same thought lies in both, they express it under different aspects. Vid. § 24.

§ 47.

DIFFERENT JUDGMENTS.

All non-identical judgments, that is, all judgments which are not the same as to form or matter, are *different*—*judicia diversa*. If the difference be but partial, that is, if two judgments possess something in common, either as to matter or form, they are called *cognate* or *similar*—*judicia cognata, similia*. Vid. § 25. *E. g.*, Some men are virtuous. Some men are vicious. These judgments are different because the predicates are different as to matter; but similar, because the subjects are the same; and the quality is the same, both being affirmative.

2. AGREEMENT AND OPPOSITION.

§ 48.

Two judgments are in *agreement* when they connect different predicate-conceptions with the same subject, and the truth of either judgment may be maintained without destroying the other; *e. g.*, John is poor; and, John is happy. Agreement depends, consequently, upon the generic difference of the predicates.

Two judgments are in *opposition* when, although they connect different predicate-conceptions with the same subject, the affirmation of the one is the denial of the other. The predicate-conceptions are exclusive reciprocally; *e. g.*, John is virtuous; and, John is vicious—*judicia opposita, pugnantia inter se*. The truth of both judgments is an impossibility.

§ 49.

CONTRADICTORY OPPOSITION.

The opposition of judgments, like that of conceptions, is twofold: 1. Contradictory or negative; 2. Contrary or positive. Vid. § 27.

Two judgments are in *contradictory* opposition when the one simply denies what the other affirms. This takes place:

1. When they are of the same quantity, but of opposite quality; *e. g.*, All men are mortal; and, All men are not mortal. Washington was a patriot; and, Washington was not a patriot.

2. When they are both of different quantity and of opposite quality; *e. g.*, All men are fallible; and, Some men are not fallible.

§ 50.

CONTRARY OPPOSITION.

A *contrary* opposition of judgments occurs whenever the several predicate-conceptions, connected with the same subject, are themselves in contrary opposition. One judgment is not only a formal denial of the other, but at the same time affirms also some different positive attribute or quality; *e. g.*, This wall is white; and, This wall is black. Arnold was a patriot; and, Arnold was a traitor. To say: this wall is *not white*, is a simple negation. The proposition is true, though the wall be red, black, brown, or yellow; no attri-

bute whatever is expressed. But to say : this wall is *black*, does not only deny the proposition : this wall is white ; but also asserts that a certain positive attribute, different from white, belongs to the color of the wall.

§ 51.

INFERENCES FROM CONTRADICTORY AND CONTRARY
OPPOSITION.

From the nature of opposition, as exhibited in § 27, the following principles are deducible :

1. Two judgments in *contradictory* opposition can neither both be true nor both false ; we may, therefore, infer the falsity of the one from the truth of the other, and the truth of the one from the falsity of the other. Take *e. g.* the propositions :

1. John is a patriot.
2. John is not a patriot.

Both can neither be true nor false. Hence, if the first be true, the second must be false ; and if the first be false, the second must be true. In like manner, we may reason from the second to the first.

2. Two judgments in *contrary* opposition can likewise not both be true, but both may be false. We may, therefore, infer the falsity of the one from the truth of the other; but we cannot do the reverse, that is, we cannot infer the truth of the one from the falsity of the other. Take *e. g.*, the propositions:

1. John is a patriot.

2. John is a traitor.

Both may be false, but both cannot be true. Hence, we may reason from the truth of the first to the falsity of the second, and from the truth of the second to the falsity of the first. But the truth of the first does not follow from the falsity of the second, nor the truth of the second from the falsity of the first; for John may be neither a patriot nor a traitor.

§ 52.

SUBCONTRARIES.

The subcontrary relation pertains to particular opposite judgments. One particular judgment is said to be *subcontrary* to another when both possess the same contents, but are of an opposite

quality; that is, both are particular, and have the same subject and predicate, but one is affirmative and the other negative; *e. g.*, Some hoofed animals are ruminant; and, Some hoofed animals are not ruminant. In reference to subcontraries it is necessary to observe:

1. That both may be true, because the same particular subject-conception may be connected with opposite predicate-conceptions; *e. g.*, Some bodies are transparent; and, Some bodies are not transparent. From the truth of a given proposition, therefore, we cannot infer the falsity of the subcontrary.

2. But both cannot be false; for the denial of a given subcontrary judgment is the affirmation of its contradictory opposite. Hence, we may reason from the falsity of the one to the truth of the other; *e. g.*, If it be false that some men are perfect, then it must be true that *all* men are not perfect, and in consequence, also, that *some* men are not perfect.

3. CO-ORDINATION AND SUBORDINATION.

§ 53.

The relation of co-ordination and subordina-

tion comes to view when we institute a comparison of judgments as to the *extent* of the conceptions which they contain.

Identical judgments are *co-ordinate*, because they are equal in respect to the extent of their conceptions.

One judgment is *subordinate* to another when both are of the same *quality*, but of different *quantity*. They are related to each other as a generic and a specific judgment; *e. g.*, All men are fallible. Some men are fallible.

Subordination is commonly called *subalternation*; and the propositions themselves, subalterns. The general proposition is called *judicium subalternans*, and the particular, *judicium subalternatum*,—the subalternate.

§ 54.

INFERENCES.

If we examine the logical connection of two subordinate judgments—one subordinate to the other,—we discover that they are related as a *genus* and its *species*, that is, as a superior and an inferior conception. Vid. § 29. Hence it follows:

1. That we may deduce the truth of a particular judgment from the truth of a general, but we cannot deduce the truth of a general from the truth of a particular; because the general comprehends the particular, but the particular does not comprehend the general; *e. g.*, if it be true, that man is a free rational creature, it is also true, that some men are free rational creatures.

On the contrary, if it be true, that some men are learned, the general inference is not therefore true also, that all men are learned.

2. We may deduce the falsity of a general from the falsity of a particular, but not the falsity of a particular from the falsity of a general; and for the same reason. If it be false that some plants are stones, then it is false also that all plants are stones.

On the contrary, if it be false that all men are virtuous, it is not, therefore, false also that some men are virtuous.

Hence the validity of the following rules :

1. *Ab universali ad particulare valet consequentia.*

2. *Ab particulari ad universale non valet consequentia.*

4. TRANSPOSITION. CONVERSION AND CONTRA-POSITION.

§ 55.

CONVERSION.

To transpose the members of a judgment is to take the subject for the predicate, and the predicate for the subject. When such an exchange of conceptions occurs, the *quality* of the judgment remains the same, or it does not. In the first instance, the transposition is called *conversion*, in the second, *contraposition*.

1. Conversion is *pure*—*conversio simplex*—when the *quantity* of both judgments remains unchanged. This is the case if the subject and predicate are equal in extent; *e. g.*, Man is a finite rational creature. Converse: A finite rational creature is man.

2. Conversion is *impure*—*conversio per accidens*—when the *quantity* must be changed. This is the case in general affirmative judgments if the extent of the predicate is greater than the extent of the subject; *e. g.*, All men are organic beings. Converse: Some organic beings are

men.—All trees are plants. Converse: Some plants are trees.

§ 56.

CONTRAPOSITION.

Contraposition is that species of transposition which takes the contradictory opposite of the predicate for the subject, and the contradictory opposite of the subject for the predicate; *e. g.*, the judgment: All roses are flowers, becomes by contraposition: Whatever is not a flower is not a rose.

§ 57.

ADDENDUM.—PROPOSITIONS.

A judgment expressed in words is called a proposition—propositio. Propositions receive different names, and possess various scientific value, according to the *immediate* or *mediate* certainty of their contents or matter; that is, according to the relation which their certainty respectively sustains to a fundamental fact. Hence, we get Fundamental and Derivative Propositions.

1. *Fundamental* propositions are such as are

not deduced from anything, but are accepted as true immediately. In the sphere of science, they constitute the principles with which all logical processes of reasoning must commence. They are divided into Axioms and Postulates.

Axioms are theoretical propositions the truth of which is self-evident.

Postulates are practical propositions the practicability of which the reason apprehends immediately. The perception of truth in one instance, and of practicability in the other, is intuitive.

2. *Derivative propositions.* The certainty of these becomes evident mediately. They are deduced from other propositions; and are divided into Theorems and Problems.

Theorems, or Doctrinal Propositions, contain a doctrine—thesis—the validity of which becomes evident by a process of proof—demonstratio.

Problems involve a question—quæstio—that requires a solution—resolutio. To resolve a question is to exhibit the practicability of what is proposed.

Propositions that are drawn or inferred from others immediately, and therefore require no further proof, are called *inferences* or *consequences*; those that are assumed as principles of

science, there being no sufficient reasons to establish their validity, are *hypotheses*.

The following propositions are, the first an axiom, and the second a postulate. A line is extension in but one direction. A line may be shortened or lengthened.

Immediate derivatives receive different names: *consequence*, from *consequi*, to follow with; *corollary*, from *corona*, because this proposition is hung like a chaplet upon another; *porism*, from *πορίζειν*, to derive.

CHAPTER IV.

REASONING, OR THE SYLLOGISM.

§ 58.

IN the discussion of Reasoning or the Syllogism, it is necessary to consider :

1. The *essential nature* of Reasoning.
 2. Its *fundamental formulæ*, or the various species of Reasoning, their properties and laws.
 3. Its *grammatical form*, or the verbal expression of Reasoning. This is properly the Syllogism.
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SECTION I.

THE ESSENTIAL NATURE OF REASONING.

§ 59.

THE PRINCIPLE OF REASONING.

THE essential nature of reasoning—*ratiocinari*

—consists in unfolding the relation of two conceptions to each other by means of a common relation which they sustain to a third. The process rests on this principle: *the general, as a ground, comprehends the particular as its consequence.*

Reasoning is therefore a process that deduces one judgment from another, by means of a third which is intermediate.

A process of reasoning when stated in language, is called a syllogism.

§ 60.

THREE JUDGMENTS IN REASONING.

Hence, every process of reasoning, as to its essence, consists of three judgments standing in *logical connection*. Logical connection implies that one, the intermediate, judgment contains certain particulars which belong also to the two others.

§ 61.

THE THREE JUDGMENTS.

These essential judgments are the following :

1. The *intermediate* judgment. It contains the general law or principle in which the two others, as particular cases, are comprehended. Hence it is called the *major proposition*—*propositio major*.

2. The *immediate* derivative. It is derived immediately from the major proposition. Hence it is called the *minor proposition*—*propositio minor*, also, *assumptio* or *subsumptio*.

3. The *mediate* derivative. It is derived from the minor proposition through the medium of the major. Hence it is called the *conclusion*—*conclusio*.

The major and minor propositions, taken together, are called *premises*—*propositiones præmissæ*.

§ 62.

THREE TERMS IN REASONING.

The three essential judgments united in the fundamental formula of reasoning, contain three leading conceptions, or *terms*, which constitute the matter of a syllogism; and each one of these occurs twice. They are the Middle, Major, and Minor Terms.

1. The mean or *middle* term occurs as the subject of the major, and as the predicate of the minor proposition.

2. The *major* term occurs as the predicate of the major proposition, and as the predicate of the conclusion.

3. The *minor* term occurs as the subject of the minor proposition, and as the subject of the conclusion.

The middle term may be designated by the letter M, the major by P, and the minor by S. The fundamental figure of a syllogism is therefore the following:

$$M = P.$$

$$S = M.$$

$$\text{Therefore, } S = P.$$

All men (M) are fallible (P),

The learned (S) are men (M),

Therefore, The learned (S) are fallible (P).

§ 63.

The formulæ of reasoning are determined by the manner in which the conclusion is derived from the premises. As this can be done in dif-

ferent ways, we get different formulæ, or various species of reasoning.

SECTION II.

FUNDAMENTAL FORMULÆ OF REASONING.

§ 64.

THE form of every thought can be determined only by the Laws of Thinking. For this reason, there are but three fundamental formulæ of reasoning: the Categorical, the Hypothetical, and the Disjunctive.

1. The *Categorical*.—The conclusion is deduced from the premises according to the law of identity, or the law of contradiction.

2. The *Hypothetical*.—The conclusion is deduced from the premises according to the law of the rational ground.

3. The *Disjunctive*.—The conclusion is deduced from the premises according to the law of the excluded third.

Logically speaking, there can therefore be no other formula or species of reasoning.

Any other classification is not determined by

the essential nature of reasoning; but relates only to a difference of verbal expression.

1. CATEGORICAL REASONING.

§ 65.

A categorical syllogism is one whose form is determined by the law of identity or the law of contradiction. In the major proposition, it contains a categorical judgment, the subject of which, being the intermediate conception, determines what the other members of the syllogism must be.

§ 66.

A categorical judgment is the foundation of all other judgments; hence, the categorical form of reasoning is the foundation of all other forms. The regular formula of a categorical syllogism is the fundamental one, as stated in § 62.

§ 67.

THE PRINCIPLE OF CATEGORICAL REASONING.

The fundamental principle of a categorical syllogism is the following: *Whatever may be predicated of a genus, or of a whole, may also be predicated of its species, or of its parts, and whatever cannot be predicated of a genus, cannot be predicated of its species.*

Or, the principle may be stated thus: A predicate which is in agreement with a genus or a general, is also in agreement with its species or its particulars; and a predicate which is in opposition to a genus or a general, is also in opposition to its species or its particulars.

Hence, we may reason categorically either by *position*—modus ponens—or by *removal*—modus tollens; that is, we may either *affirm* or *deny*.

Ancient logicians expressed this principle in different ways:

Nota notæ est nota rei; and, nota repugnans notæ repugnat rei.

Prædicatum prædicati est etiam prædicatum subjecti.

Dictum de omni et de nullo, or, quidquid valet

de omni, valet etiam de quibusdam et singulis, quidquid de nullo valet, nec de quibusdam nec de singulis valet.

Quidquid valet de genere, valet etiam de specie, and, quidquid repugnat generi, repugnat etiam speciei.

§ 68.

THE FIRST PARTICULAR RULE.

From what has been said of the nature of a categorical syllogism, we deduce the following particular rules:

1. *A categorical syllogism cannot have either more or less than three leading conceptions or terms—M, P, S; for its essential nature consists in this, that two conceptions are determined by an intermediate third conception. In consequence, it can contain but one middle term, or but one general principle; otherwise a subordination of two conceptions to one would not be possible. The opposite error is called quaternio terminorum; e. g.,*

All passions are evil.

All men are capable of virtue.

It is true, there may be apparently more than

three leading conceptions in a categorical syllogism ; but that conception only can be regarded as a terminus, which, when taken either by itself or connectively, constitutes an essential element of the syllogism.

§ 69.

THE SECOND RULE.

2. *The middle term cannot be a particular in both premises, but must always be a general in the major proposition.* For, if the major be a particular judgment, it is not certain, logically speaking, whether the subject of the minor is one of the particulars which the major comprehends; *e. g.*,

Some men are kings,
John is a man,
Therefore, John is a king.

As a matter of fact, however, the conclusion may be correct; *e. g.*,

Some plants are poisonous,
The belladonna is a plant,
Therefore, The belladonna is poisonous.

But as, in this example, the conclusion does

not follow from the premises, the syllogism is not valid.

§ 70.

THE THIRD RULE.

3. *The premises cannot both be negative.* For no conclusion can follow from mere negation. As to quality, therefore, the major proposition may be either affirmative or negative; but the minor must always be affirmative. For it is the office of the minor to place one conception, its subject, in subordination to another, the subject of the major; or, in other words, to affirm that a given particular is a part of some general. The minor term is affirmed to belong to the extent of the middle term. But the force of a negation would be, that S is no part at all of the extent of M; *e. g.*,

A plant is not an animal,

A bird is not a plant,

Therefore, A bird is not an animal.

The rules laid down in §§ 69 and 70 may be expressed briefly thus: *ex propositionibus mere particularibus et negantibus nil sequitur.*

§ 71.

THE FOURTH RULE.

4. As the conclusion derives its subject from the minor, and its predicate from the major proposition, it follows that *the quantity of the conclusion is regulated by the quantity of the minor, and the quality of the conclusion by the quality of the major*. Accordingly, the conclusion must be affirmative if the major be affirmative, and negative, if the major be negative. It must be particular if the minor be particular, and singular if the minor be singular.

Ancient logicians stated this rule thus: *conclusio sequitur partem debiliorem* (particularity) *et deteriorem* (negation). The conclusion must always correspond exactly to the premises. A violation of the rule gives rise to several errors:

1. The conclusion may include more or less than the premises. The first case occurs when the major is enlarged; *e. g.*,

An artist deserves respect,

This sculptor is an artist,

Therefore, This sculptor deserves great respect.

The second case occurs when the major is diminished; *e. g.*,

Every noble action is connected with peace of conscience and self-respect,

This action is noble,

Therefore, This action is connected with peace of conscience.

2. The conclusion may contain the middle term, which is a violation of the fundamental formula; *e. g.*,

Every enterprising artist is praiseworthy,

John is an enterprising artist,

Therefore, John is an enterprising and praiseworthy man.

§ 72.

THE FIFTH RULE.

5. *The words which represent the terms of a syllogism must always be used in the same sense.* Otherwise ambiguity of expression arises; and we get four, instead of only three terms, a *quaternio terminorum*.

The fallacious syllogisms belonging to this class are called: *sophismata amphibolæ*, *fallaciæ*, also, *quadrupedes*, or *vulpeculæ*. Among these we include particularly the *Conclusio a dicto sim-*

pliciter ad dictum secundum quid—the fallacy which, at one time, takes a conception in a general sense, and at another, with certain restrictions; *e. g.*,

Every spirit is a person,
The spirit of wine is a spirit,
Therefore, The spirit of wine is a person.

Animals are destitute of reason,
Men are animals,
Therefore, Men are destitute of reason.

§ 73.

THE FIGURES OF A SYLLOGISM.

The fundamental figure of a syllogism, given in § 62, is susceptible of various modifications, by changing the position of the middle term relatively to the major and minor terms; we obtain, consequently, several subordinate figures—*σχηματα*.

The different positions which it is possible for the middle term to have relatively to the other terms of a syllogism, are these: It may be the subject of the major, and the predicate of the minor proposition; or it may be the predicate of

both; or it may be the subject of both; or it may be the predicate of the major, and the subject of the minor. Thus, we obtain four figures:

I.	II.	III.	IV.
$M = P.$	$P = M.$	$M = P.$	$P = M.$
$S = M.$	$S = M.$	$M = S.$	$M = S.$
$S = P.$	$S = P.$	$S = P.$	$S = P.$

Every virtue (M) is praiseworthy (P),

Justice (S) is a virtue (M),

Therefore, Justice (S) is praiseworthy (P).

The first three syllogistic figures are denominated *Aristotelian*, from Aristotle, who first subjected them to a thorough discussion; and the fourth, *Galenian*, from Cl. Galenus, the inventor, a physician and philosopher, who died A.D. 200. The first figure, logically speaking, must be regarded as fundamental in its relation to the other three. It is therefore the criterion of the others; and to it they are all reducible.

2. HYPOTHETICAL REASONING.

§ 74.

A hypothetical syllogism is one whose form is determined immediately by the law of the

rational ground. The conclusion does not only follow from the premises, but depends also upon a condition expressed in one of the premises themselves, namely, in the major proposition, which is a hypothetical judgment.

§ 75.

THE LAW OF HYPOTHETICAL REASONING.

The fundamental law of a hypothetical syllogism is this: *To affirm the condition or the ground is to affirm the conditional or the consequence, and to deny the conditional is to deny the condition.*

The reverse, however, does not hold true in either case. The denial of the condition is not the denial of the conditional; and the affirmation of the conditional is not the affirmation of the condition. The office, consequently, of the minor, is to affirm the condition, or to deny the conditional.

The ancient logicians expressed this twofold fundamental law as follows: A ratione ad rationatum valet consequentia; and, A negatione rationati ad negationem rationis valet consequentia.

The reverse of this law does not hold true, because the same effect may be produced by different causes; this, at least, may be regarded as true in view of the limited capacity of the human understanding, which, among a variety of conceivable causes, is not always able to discover the only one that is possible, and therefore real.

§ 76.

TWO MODES OF HYPOTHETICAL REASONING.

It follows that a hypothetical syllogism involves two modes—*modi*—of reasoning: one by *position*—*modus ponens*—and the other by *removal*—*modus tollens*. The formula may be stated thus:

If A is, then B is,

Now A is,

Therefore, B is.

Or,

If A is, then B is,

Now B is not,

Therefore, A is not.

The modes are the same if the major proposition be a negative. *E. g.*,

If A is, then B is not,
 Now A is,
 Therefore, B is not.

Or, by removal,

If A is, then B is not,
 Now B is,
 Therefore, A is not.

§ 77.

MODES OF REASONING CONTINUED.

We may reason, therefore :

1. *Modo ponente* : from the truth of the antecedent, the condition or ground, which the minor proposition asserts, to the truth of the consequent, or the conditional. *E. g.*,

If the air be elastic it is compressible,
 Now the air is elastic,
 Therefore, The air is compressible.

2. *Modo tollente* : from the falsity of the consequent, which the minor proposition asserts, to the falsity of the antecedent. *E. g.*,

If this body be a magnet, it will attract iron,
 Now this body does not attract iron,
 Therefore, This body is not a magnet.

But we cannot reason in the reverse order. The reverse order can be valid only in case the antecedent involves the only possible condition or ground of the consequent.

Hence, we cannot reason from the truth of the consequent to the truth of the antecedent. *E. g.*,

If John is virtuous, he does not steal,

Now John does not steal,

Therefore, John is virtuous.

Nor can we reason from the falsity of the antecedent to the falsity of the consequent. *E. g.*,

If there be ghosts, we ought to be circumspect,

Now there are no ghosts,

Therefore, We ought not to be circumspect.

§ 78.

A HYPOTHETICAL SYLLOGISM, PURE OR MIXED.

A hypothetical syllogism may be pure or mixed.

1. It is *pure*, if both premises are hypothetical propositions.

2. It is *mixed*, if the major only is a hypothetical proposition.

The conclusion of a pure hypothetical syllogism can never express an affirmative or completed judgment; for, from two conditional premises, none but a conditional conclusion can consistently be drawn. *E. g.*,

If John has done wrong, he ought to be punished,
If John has transgressed a law, he has done wrong,
Therefore, If he has transgressed, he ought to be punished.

3. DISJUNCTIVE REASONING.

§ 79.

A disjunctive syllogism is one whose form is determined by the law of the excluded third. It contains therefore at least one disjunctive judgment; and, as this is intermediate, it constitutes the major proposition.

§ 80.

TWO MODES OF DISJUNCTIVE REASONING.

The members of a disjunctive judgment affect each other reciprocally. To affirm one is to

deny the others, and to deny one is to affirm the others. Hence it is the office of the minor to affirm or to deny one or more members of the major. And there are, consequently, two modes—*modi*—of reasoning applicable to a disjunctive syllogism.

1. From the position or affirmation of one or more disjunctive members in the minor, we reason to the denial of the rest in the conclusion—*modus ponendo tollens*. *E. g.*,

This bloodvessel is either an artery or a vein,

Now it is an artery,

Therefore, It is not a vein.

2. From the removal or denial of one or more disjunctive members in the minor, we reason to the position or affirmation of the rest in the conclusion—*modus tollendo ponens*. *E. g.*,

This angle is either a right, or an obtuse, or an acute
angle,

Now it is neither obtuse nor acute,

Therefore, It is a right angle.

§ 81.

RULES FOR DISJUNCTIVE REASONING.

From these principles we deduce the following rules :

The major proposition must always contain a disjunctive judgment.

The minor may either be affirmative or negative.

But the quality of the conclusion must be opposite to that of the minor ; that is, the conclusion must be negative when the minor is affirmative, and affirmative when the minor is negative.

The principal formulæ are these :

A is either B or C,

Now A is B,

Therefore, A is not C.

Or,

A is either B or C,

Now A is not B,

Therefore, A is C.

§ 82.

THE LAW OF DISJUNCTIVE REASONING.

The essential nature of a disjunctive syllogism

is derived from this law: *The position of one attribute is the removal of its contradictory opposite; and vice versa.* Its validity, in every instance, depends upon two things: 1. That all the disjunctive members be correctly enumerated in the major; and, 2. That the position or removal be correct in the minor. If these conditions are not met, a conclusion, correct as to its form, may be false as to its matter.

§ 83.

ADDENDA. 1. PARTITIVE REASONING.

The *partitive* or divisive syllogism is one the major proposition of which contains a partitive judgment. Vid. § 42. As to its form, it belongs to the species of disjunctive reasoning. All the partitive objects comprehended within the extent of the subject, are set down in the predicate of the major proposition. The office of the minor is to affirm, or to deny, one or more of these partitive objects.

The formula, like that of the disjunctive syllogism, is determined by the law of the excluded third. The modes of reasoning are therefore the same.

1. We reason—modo ponendo tollente—from the position of one partitive member in the minor to the removal of the rest in the conclusion.

2. Or, we reason—modo tollendo ponente—from the removal of all the partitive members but one in the minor, to the position of that one in the conclusion.

The fundamental formulæ are the following:

A is partly B, partly C, partly D,

Now this A is B,

Therefore, This A is neither C nor D.

Or,

A is partly B, partly C, partly D,

Now this A is neither C nor D,

Therefore, This A is B.

In order that this syllogism may be true in any given case, it is necessary to specify correctly, in the predicate of the major, all the partitive objects comprehended in the extent of the subject.

§ 84.

ADDENDA. 2. THE DILEMMA.

The Dilemma—*δυσ λημμα*—is a mixed or *hypothetico-disjunctive* syllogism. The major proposition

contains a hypothetico-disjunctive judgment; the minor removes the disjunctive conditional, and by consequence the hypothesis is removed in the conclusion. The mode of reasoning is essentially by removal—modo tollente. The formula is:

1. If A is, then either B or C must be,

Now neither B nor C is,

Therefore, A is not.

If this body were charged with electricity, it would be
either in a positive or negative state,

Now it is neither in a positive nor in a negative state,

Therefore, This body is not charged with electricity.

2. If A is, then neither B nor C can be,

Now both B and C are,

Therefore, A cannot be.

If the soul were matter, it could neither rise to the
conception of the infinite, nor act freely,

Now the soul can do both,

Therefore, The soul is not matter.

§ 85.

A VALID DILEMMA.

In order to the correctness of a Dilemma or hypothetico-disjunctive syllogism, it is necessary:

1. That the major proposition be consistent; that is, the second member must follow necessarily, as a consequence, from the first, as its ground.

2. That all the disjunctive members be stated in the major proposition.

3. That all these disjunctive members be entirely removed in the minor; in other words, that the incompatibility of these members with the hypothesis, be fully stated.

If these rules are disregarded, the Dilemma may easily be abused, and instead of exposing error, may subserve the purposes of a delusive sophistry.

If there are three disjunctive members in the major proposition, this species of reasoning is called a Trilemma; if four, a Tetralemma; if more than four, a Polylemma.

The Dilemma, taken in a general sense, is also called *sylogismus cornutus*, or a horned syllogism. For it is, properly speaking, a syllogism which serves the purpose of indirect contradiction. Its disjunctive members turn, like horns, upon some given antagonistic proposition, to which they sustain the relation of consequence to ground. As one after another is refuted, the

proposition itself is thereby overthrown. Thus Leibnitz, in order to establish his doctrine concerning the optimity of the universe, refutes the opposite proposition, namely, that *the order of things in the universe is not adapted to produce the most good*, by employing the following Trilemma :

If the present order of the universe is not the best order, then either God did not know what the best order is, or he did not will, or he was not able, to establish it,

Now neither one of these alternatives can be maintained in view of God's infinite wisdom, infinite goodness, and infinite power,

Therefore, The present order of the universe is the best.

SECTION III.

THE VERBAL EXPRESSION OF REASONING.

§ 86.

THE SYLLOGISM.

THE verbal expression, or the language of reasoning, is the *syllogism*. Syllogisms are divided into simple and compound.

1. A *simple* syllogism—monosyllogismus: the conclusion is derived from two premises only.

2. A *compound* syllogism—polysyllogismus: the conclusion is derived from more than two premises.

Each may be either complete or incomplete. It is *complete*, when it possesses all the essential elements of the syllogistic formula, and *incomplete*, when it does not possess all these elements.

1. THE SIMPLE SYLLOGISM.

§ 87.

THE COMPLETE SIMPLE SYLLOGISM.

A simple syllogism is *complete* when no essential constituent of the syllogistic formula is omitted; when, accordingly, it has a Major, a Minor, and a Conclusion. *E. g.*,

1. $M=P$,

2. $S=M$,

3. $S=P$.

All transgressors merit punishment,

John is a transgressor,

Therefore, John merits punishment.

§ 88.

THE INCOMPLETE SIMPLE SYLLOGISM.

A simple syllogism is *incomplete* when the three judgments which it includes, are not all formally expressed in propositions. It is also called an *abridged* syllogism—*syllogismus decurtatus*—and as such is either *defective* or *contracted*.

§ 89.

ENTHYMEMES.

A *defective* syllogism—*ἐν θύμῳ*—is called an Enthymeme, because but one of the premises is formally stated. Enthymemes are of two orders:

1. They are of the *first* order, when the major proposition is suppressed. *E. g.*,

S=M.

S=P.

John is a transgressor,
Therefore, John ought to be punished.

2. They are of the *second* order, when the minor proposition is suppressed. *E. g.*,

$$M=P.$$

$$S=P.$$

Every transgressor ought to be punished,
Therefore, John ought to be punished.

Any species of reasoning may be reduced to the form of such an elliptical syllogism. And an elliptical syllogism can easily be resolved into a complete syllogism. The suppressed premiss is supplied by comparing the conclusion with the given premiss, because the minor and major terms always occur in the conclusion, and the middle term in the given premiss. If the subject of the conclusion is the subject of the given premiss, the *predicate* of the given premiss is the middle term; but if the subject of the conclusion is not the subject of the given premiss, then the *subject* of the given premiss is the middle term. If the middle term is the predicate of the given premiss, the major proposition is suppressed; if the middle term is the subject of the given premiss, the minor is suppressed.

§ 90.

CONTRACTED SYLLOGISM.

An abridged syllogism is said to be *contracted*

when the middle term only is given as the reason for the truth of the conclusion. The conclusion may either precede or succeed the middle term; from which the premises can easily be developed by reflection. *E. g.*,

Covetousness ought to be despised, because it is a vice,
Or, Because covetousness is a vice, it ought to be despised.

§ 91.

IMMEDIATE SYLLOGISMS.

The so-called Immediate Syllogisms constitute a species of Enthymeme; and are derived from the relations which judgments sustain to each other as unfolded in §§ 44–54. They have only two terms. The major proposition must generally be supplied, and, generally also, in the form of a hypothetical judgment. From the identity and opposition, the subordination and transposition of judgments, we derive four species of Immediate Syllogisms, namely, Equipollent, Opposite, Subordinate, and Transpositional.

1. The *Equipollent* Syllogism.—One proposition is deduced from another which embodies the

same thought expressed in different language.

E. g.,

God is omniscient,

Therefore, Nothing is unknown to Him ;

Or,

He knows all things.

2. The *Opposite* Syllogism.—One proposition is deduced from another in virtue of their mutual opposition. *E. g.,*

This angle is a right angle,

Therefore, It is not obtuse.

3. The *Subordinate* Syllogism.—One proposition is deduced from another to which it is subordinate. *E. g.,*

Every virtue is praiseworthy,

Therefore, Justice is praiseworthy.

4. The *Transpositional* Syllogism.—One proposition is deduced from another by means of transposition. *E. g.,*

No human being is irrational,

Therefore, No irrational creature is a human being.

In the *Opposite* Syllogism, we reason from the truth of one proposition to the falsity of the other, and from the falsity of one to the truth of the other. It is necessary, however, to notice the

nature of the opposition, as it may be either contradictory or contrary. Only when the opposition is *contradictory* can we reason correctly from the truth of one proposition to the falsity of the other, and the reverse. *E. g.*, Take the two propositions :

This wall is black.

This wall is not black.

If the first be true, the second is false; and if the first be false, the second is true. But if the opposition be contrary, we can only reason from the truth of the one proposition to the falsity of its opposite; we cannot reason from the falsity of the one to the truth of the other. It would, therefore, not be valid to say: This angle is not obtuse; therefore it is a right angle; for it might be acute.

As regards the Subordinate Syllogism we may proceed either synthetically or analytically: we may reason from the general to the particular, or from the particular to the general.

As regards the Transpositional Syllogism, the nature of conversion and contraposition must be borne in mind, as set forth in §§ 55 and 56.

2. THE COMPOUND SYLLOGISM.

§ 92.

A syllogism is called *compound* when the conclusion is derived from two or more simple syllogisms. These simple syllogisms constitute the premises of a compound syllogism or polysyllogism, and must therefore stand in *logical connection* with each other. Logical connection implies the relation of one, as the ground, to the other, as its consequence.

In discussing the nature of compound syllogisms, the more various we conceive the possible combinations of simple syllogisms to be, the easier is it to become lost in empty and far-fetched subtleties, which are foreign to actual thinking, and promote neither ordinary reflection nor scientific ratiocination. Hence, we will confine our discussion to the principal formulæ.

§ 93.

POLYSYLLOGISMS, COMPLETE OR INCOMPLETE.

Polysyllogisms, like simple syllogisms, are

either complete or incomplete. They are *complete*, if the simple syllogisms constituting the premises, are complete; and *incomplete*, if the premises are incomplete. They may, likewise, conform to any logical formula of reasoning, whether categorical, hypothetical, or disjunctive.

§ 94.

THE SYLLOGISTIC SERIES.

A *complete*, or manifest, *compound* syllogism is composed of at least two complete simple syllogisms; and these are related to each other as ground and consequence; thus they form a syllogistic series, or chain of syllogisms—series syllogistica.

§ 95.

PROSYLLOGISM AND EPISYLLLOGISM.

In a regular progressive series of syllogisms, the first is called the *prosyllogism*, because it contains the principle from which the series is deduced. The conclusion of the prosyllogism con-

stitutes one of the premises of the succeeding syllogism.

The second syllogism is called the *episylogism*, because it contains the consequence following from the first. One of the premises of the episylogism is the conclusion of the preceding syllogism.

If the syllogistic series is composed of more than two simple syllogisms, each intermediate one may be regarded both as a prosyllogism and as an episylogism; for each one is in turn the consequence and the ground of another. It is an episylogism in its relation to the syllogism from which it is derived, and a prosyllogism in its relation to the syllogism which is derived from it.

§ 96.

PROGRESSIVE AND RETROGRESSIVE SERIES.

The train of thought, and by consequence also, the verbal expression, of a syllogistic series is twofold: either progressive or retrogressive.

1. The series is *progressive*—called also episylogistic or synthetic—when we begin with the prosyllogism, and from it derive the episylogism.

In this case, we proceed from ground to consequence.

2. The series is *retrogressive*—called also prosyllogistic or analytic—when we begin with the episyllogism, and proceed from it to the prosyllogism. In this case, we pass from consequence to ground.

Formula of a Progressive Series.

1.

A=P,	Every organism is transitory,
B=A,	All plants are organic,
B=P.	Therefore, All plants are transitory.

2.

B=P,	All plants are transitory,
C=B,	All trees are plants,
C=P.	Therefore, All trees are transitory.

3.

C=P,	All trees are transitory,
S=C,	All oaks are trees,
S=P.	Therefore, All oaks are transitory.

Formula of a Retrogressive Series.

1.

S=A,	A virtuous man governs himself,
A=B,	He who governs himself is stable,
S=B.	Therefore, A virtuous man is stable.

2.

S=B,	A virtuous man is stable,
B=C,	He who is stable is tranquil,
S=C.	Therefore, A virtuous man is tranquil.

3.

S=C,

A virtuous man is tranquil,

C=P,

He who is tranquil is happy

S=P. Therefore, A virtuous man is happy.

 § 97.

INCOMPLETE POLYSYLLOGISMS.

Polysyllogisms are *incomplete* when the premises and conclusions of the simple syllogisms, of which they are composed, are not fully stated. For this reason, they are also called *concealed* syllogisms. To this class belong the Sorites, or concatenated syllogism, and the Epichirema, or separated syllogism.

 § 98.

THE SORITES.

A concatenated syllogism, or the Sorites, consists of a series of premises which are logically connected with each other, and have one conclusion common to all.

The train of thought, and by consequence also,

the mode of reasoning, may be twofold: analytical or synthetical.

1. It is *analytical*, when we ascend from the particular to the general, or from the conditional to the condition.

2. It is *synthetical*, when we descend from the general to the particular, or from the condition to the conditional.

The word *sorites* is derived from *σωρος*, a heap; hence, *σωρευτης συλλογισμος*, ratiocinium acervale. Strictly speaking, the Sorites is composed of a series of Enthymemes, each one of which is easily resolved into a complete simple syllogism.

§ 99.

ANALYTICAL SORITES.

If the concatenated syllogism is *analytical*—called also Aristotelian, or common,—the predicate of the first or preceding premiss becomes the subject of the second or succeeding premiss, and the predicate of the second, the subject of the third, and so on. The mode of reasoning is therefore prosyllogistico-retrogressive. *E. g.*,

$A=B,$	All oaks are trees,
$B=C,$	All trees are plants,
$C=D,$	All plants are organic,
$D=E,$	All organisms are transitory,
Therefore $A=E.$	Therefore, All oaks are transitory.

§ 100.

SYNTHETICAL SORITES.

If the concatenated syllogism is *synthetical*,—called also *Goclenic* or *inverted*,—the subject of the first premiss becomes the predicate of the second, and the subject of the second, the predicate of the third, and so on. The mode of reasoning is therefore episyllogistico-progressive.
E. g.,

$D=E,$	All organisms are transitory,
$C=D,$	All plants are organisms,
$B=C,$	All trees are plants,
$A=B,$	All oaks are trees,
Therefore $A=E.$	Therefore, All oaks are transitory.

The name *Goclenic* is derived from Rud. Goclenius, Professor of Philosophy at Marburg, who died in A. D. 1628.

§ 101.

HYPOTHETICAL SORITES.

The modes of reasoning stated in §§ 99 and 100 refer to a categorical Sorites. But they are applicable also to a chain of *hypothetical* syllogisms; a disjunctive chain would not be likely to occur.

The formulæ of an *analytico-hypothetical* Sorites are:

- | | |
|---------------------------|---|
| 1. Reasoning by position: | If A is, then B is,
If B is, then C is,
If C is, then D is,
Now A is,
Therefore D is. |
|---------------------------|---|

- | | |
|----------------|---|
| 2. By removal: | If A is, then B is,
If B is, then C is,
If C is, then D is,
Now D is not,
Therefore A is not. |
|----------------|---|

The formulæ of a *synthetico-hypothetical* Sorites are:

- | | |
|---------------------------|--|
| 1. Reasoning by position: | If C is, then D is,
If B is, then C is,
If A is, then B is,
Now A is,
Therefore D is also. |
|---------------------------|--|

2. By removal: If C is, then D is,
 If B is, then C is,
 If A is, then B is,
 Now D is not,
 Therefore A is not.
-

§ 102.

THE EPICHIREMA.

The Epichirema, or separate syllogism, is a proposition which is annexed to either one or both premises for the purpose of establishing their truth. This confirmatory proposition is properly an enthymeme; and can be resolved into a complete monosyllogism.

The formula is twofold:

1. $M=P$, for M is x .
 $S=M$.
 $S=P$.

The industrious merit respect, for the industrious perform their duties,
 John is industrious,
 Therefore, John merits respect.

If the annexed proposition: for the industrious perform their duties—be resolved into a complete syllogism, we have:

Those who perform their duties merit respect,
 The industrious perform their duties,
 Therefore, The industrious merit respect.

2. $M=P$.

$S=M$, for M is x .

$S=P$.

Unjust laws endanger the stability of Government,
 Laws which restrain the freedom of conscience are
 unjust ; for they require people to abandon their
 dearest concerns,
 Therefore, Laws which restrain the freedom of conscience en-
 danger the stability of Government.

The name *epichirema*, derived from ἐπιχειρημα, and this from ἐπιχειρεῖν, is a word which ancient logicians applied, in a general way, to argumentative reasoning.

PART SECOND.

THE DOCTRINE OF METHOD.

§ 103.

METHOD.

THE Doctrine of Method constitutes the Second Part of Pure Logic. The term *method* is derived from the Greek $\mu\epsilon\theta\omicron\delta\omicron\varsigma$, and in its general application, signifies any process, determined according to certain principles, by which something is done, produced, or investigated.

The Doctrine of Elements develops the fundamental operations of the mind, Conceptions, Judgments, and Reasoning, as determined by the fundamental Laws of Thinking. Thus we become conscious of the general principles and single elements which enter into all sound ratiocination.

The Doctrine of Method continues the development of these Laws, but in their direct relation to

connected discourse. Connected discourse is the union, according to given principles, of single cognitions in a regular train of thought. United in this manner, single cognitions form one organic whole; and the understanding obtains a satisfactory insight into, and takes a comprehensive survey of, all its knowledge.

It is the office of the Second Part of Pure Logic, therefore, to deduce the principles and rules from the fundamental Laws of Thinking, according to which the single operations of the understanding, Conceptions, Judgments, and Reasoning, are woven into one connected train of thought.

§ 104.

UNION OF COGNITIONS.

The nature of any union of cognitions must be determined by the relation which these cognitions themselves sustain to each other. This relation may be twofold, either *external* or *internal*; hence, a union of cognitions may also be either external or internal.

§ 105.

EXTERNAL AND INTERNAL UNION.

An *external* union is determined by the external relations of objects in space and time. In space, these objects of the understanding exist side by side; in time, they come to view in succession. Thus we get the Geographical and Chronological Method.

An *internal* union is based upon the internal relations of things. These internal relations consist in the necessary reciprocal dependence of being or substance and attribute or accident, of cause and operation or effect, of condition and conditional, of end and means. A union of cognitions, determined by this necessary dependence, is the Logical Method.

§ 106.

THE LOGICAL METHOD.

It is the fundamental tendency of the understanding to refer its manifold conceptions or cognitions each to its own category, and thus reduce

them to unity, in order to comprehend them. In other words, it subordinates a particular to the général, a case to its rule, and an inference or a consequence to a universal proposition. Hence it is the Logical Method only which can satisfy the deepest wants of the human understanding.

§ 107.

A SYSTEM.

An internal union of homogeneous cognitions constitutes *a system*. A system is an organic whole, all of whose parts are internally connected by the force of one determinative conception. If the cognitions and the determinative conception be true, the system is *a science*.

§ 108.

SCIENCE.

Science is both objective and subjective.

Objective science is science as such; or the systematic exhibition of homogeneous cognitions as

derived from a general principle, the truth of which is immediately evident or certain to reason.

Subjective science is the development and possession of such cognitions by the mind of the individual.

§ 109.

ANALYSIS AND SYNTHESIS.

The method of developing the contents of a science is twofold: either analytical or synthetic.

Analysis begins with the facts or particulars which are given by experience, and from these it proceeds, by means of comparison and abstraction, to form a conception of the general.

Synthesis begins with the general conception, which is the result of induction from experience; and then deduces the knowledge of particulars from given principles. The knowledge of particulars which the synthetic method furnishes, carries with it the conviction of necessary truth; for it explicates them from the general, as belonging to it *implicite*.

Either one of these methods of investigation

employed separately, is inadequate to the production of science ; for each demands and completes the other. Science results from a logical process which unites both.

§ 110.

SYSTEM AN ORGANIC UNITY.

System, now, is the form of science, and the manifold cognitions which science includes are its contents. A system is, therefore, the reduction of these manifold cognitions to *organic unity*, which consists in the internal oneness of a variety of parts or members. These members, single and different, condition each other reciprocally, because they grow forth from one principle, which, as a force from within pervading them all, determines their relative position and action. Thus, in virtue of a common relation to a single force which binds them together internally, they constitute one whole of the highest order.

The principle is the fundamental idea, the starting-point, of science, which, like a spirit penetrating all the parts, animates the whole.

It is the office of method, when viewed as the

doctrine of the general form of every science, to teach the rules by which a scientific system can be constructed. Hence, it is called also Systematics or Architectonics.

§ 111.

CONSTRUCTION OF A SYSTEM.

In order to construct a scientific system, it is necessary to possess a complete knowledge of the *contents*, *extent*, and *truth* of all the cognitions that are to be combined to form an organic whole.

Such knowledge is acquired by means of Logical Definition, Logical Division, and Argumentation.

Logical definition furnishes a clear and distinct insight into the *contents* of the conceptions and judgments, the single members of the system. Definitio.

Logical division enables the understanding to take a complete survey of all the members; that is, to get a view of the entire *extent* of each cognition entering into the system. Divisio.

Argumentation serves to produce a conviction

of the truth of each cognition, and of the whole chain of connected cognitions. Argumentatio.

§ 112.

THE OFFICE OF METHOD.

The form of science, or system, results from this threefold activity of the understanding. The rules, therefore, which it is the office of the doctrine of method to develop, relate :

1. To Definition.
2. To Division.
3. To Argumentation.

CHAPTER I.

OF DEFINITION.

§ 113.

LOGICAL Definition consists in the complete development of the contents of a conception. This is accomplished by stating its essential attributes.

§ 114.

OFFICE OF DEFINITION.

The essential attributes which it is the office of definition to unfold, are the *genus-attribute* and the *species-attribute*.

The genus-attribute—genus proximum—designates the genus to which the given conception is immediately subordinate; and thus determines its relative position in the series of conceptions to which it belongs.

2. The species-attribute—*differentia specifica*—designates the species of the given conception; and thus distinguishes it from all others that belong to the same genus.

To define a conception logically, means therefore to give the genus to which it is immediately subordinate, together with a specific difference. *Definitio fit per genus proximum et differentiam specificam.* Aristotle says: *ὁ ὁρισμὸς ἐκ γένους καὶ διαφορῶν ἐστίν.*

The conception which is to be defined is called the *definite*; the genus-conception and the specific difference constitute the *definition*. *E. g.*, Man is a finite—circumscribed or limited—rational being. In this definition, “rational being” is the genus by which man is distinguished from all irrational creatures, and “finite” is the specific difference by which he is distinguished from all other rational beings.

From what has thus far been said we may decide also as to what is, and what is not, definable. A simple conception is not susceptible of being defined, because there is no genus-conception to which it is subordinate. Neither is the Infinite definable. A definition of the Infinite would be: the limitable Infinite, which would be

a *contradictio in adjecto*, and analogous to saying, a quadrangular circle: the predicate directly contradicts the subject.

§ 115.

FUNDAMENTAL PRINCIPLE OF DEFINITION.

The following is, therefore, the fundamental principle upon which a correct logical definition is to be constructed:

A CORRECT DEFINITION MUST STATE THE NEXT HIGHER GENUS WITHIN THE EXTENT OF WHICH THE GIVEN DEFINABLE CONCEPTION LIES, AND THEN ADD THE ESSENTIAL ATTRIBUTE BY WHICH IT IS ACCURATELY DISTINGUISHED FROM ALL COLLATERAL AND SUBORDINATE CONCEPTIONS.

§ 116.

FIRST RULE FOR DEFINITION.

From this general principle we deduce particular rules by which a definition is constructed, and its correctness can be tested.

1. *A definition must be sufficient*—*definitio sit*

adæquata,—that is, it must give the contents of a conception fully. This rule implies two things:

1. A definition must include essential, and exclude accidental, attributes.

2. A definition must be *identical*, in other words, the *definite* and the *definition* must be interchangeable. In consequence, they must not only possess the same contents, but also be of the same extent.

§ 117.

A CORRECT DEFINITION.

In order to test the correctness of a definition, we apply two modes of transposition, namely, pure conversion and pure contraposition. If the proposition containing the definition is not susceptible of either, the definition is not correct; it is either too broad or too narrow. Vid. §§ 55 and 56.

1. A definition is *too broad*—*latior suo definito*—when it includes a genus which is too remote from the definite. The extent of the genus is greater than that of the definite, and the contents are smaller. The error is detected by means of

pure conversion. The following definitions, *e. g.*, are too broad: An animal is an organic being which is capable of moving from place to place; A square is a quadrangle, all of whose angles are right angles. By pure conversion, they become: An organic being capable of moving from place to place, is an animal; A quadrangle, all of whose angles are right angles, is a square. Both are false. The one includes man, the other a rectangle.

2. A definition is *too narrow*—*angustior suo definito*—when it includes a specific difference which is lower than the definite. The extent of the specific difference is smaller than that of the definite, and the contents are greater. The error is detected by pure contraposition. *E. g.*, The definition; A parallelogram is an equiangular quadrangle, would be by contraposition: Whatever is not an equiangular quadrangle is not a parallelogram; which is incorrect. Again: A quadruped is an animal that chews the cud. The definition is defective, for it excludes all non-ruminating quadrupeds. The error becomes apparent at once by contraposition: An animal that does not chew the cud, is not a quadruped.

§ 118.

THE SECOND RULE.

2. *A definition can never describe a circle*—*ne fiat in orbem*,—that is, the definite must not occur in the definition. A circle may be immediate or mediate.

1. It is *immediate* when the definite occurs directly in the definition. *E. g.*, Law is a legal rule.

2. It is *mediate* when the definite does not occur directly, but in a subordinate explanation. *E. g.*, Law is the expression of the will of a ruler; a ruler is one who governs others; and to govern others means to enact laws by which they are governed.

A circle is *manifest* when the given conception recurs in the definition in the use of the same word; it is *concealed* when the conception recurs, not in the use of the same, but of an equivalent word.

§ 119.

THE THIRD RULE.

3. *A definition cannot be a mere negation*—*ne sit*

negans. Mere negation only says what a thing is not, but does not say what a thing is, and cannot consequently furnish any knowledge of its nature. *E. g.*, Electricity is neither light, nor heat, nor magnetism.

This rule, however, does not apply strictly to *negative* conceptions. In such cases, negation is the essential matter, inasmuch as the conceptions themselves signify the want of positiveness. *E. g.*, Cold, darkness, etc.

The *definitio per disjuncta*, a species of definition which introduces confusion in the order of expression, is as defective as mere negation. *E. g.*, A proposition is a sentence that affirms or denies something of another person.

§ 120.

THE FOURTH RULE.

4. A definition must be *intelligible, simple, and short*—*definitio ne sit abundans, ambigua*. It is necessary, therefore, to avoid figurative and ambiguous language.

Frequent violations of these rules in modern times, have done a great deal of injury to the

cause of true science. Figurative expressions and ambiguous phraseology serve to conceal superficial knowledge, and the absence of profound logical investigation.

§ 121.

NOMINAL AND VERBAL DEFINITION.

Every true definition is in its nature the explication of some real or positive object—*definitio realis*;—for, to state the essential attributes of a thing is really to explicate the thing itself.

The explanation of words, or *nominal* definition, as it is called, is therefore, strictly speaking, no definition; for it merely explains the etymological signification of the name of a thing, whilst it furnishes no knowledge of the nature of a thing itself.

Such etymological explanation, however, may be valuable, particularly in its bearing upon those sciences which borrow their technical terminology from foreign languages; as it serves to prepare the way for proper definition. *E. g.*, If it be said: Jurisprudence is the science of justice, it is proper to explain what justice is.

Many logicians distinguish between the explanation of words and the explanation of names, or between *verbal* definition and *nominal* definition. The former simply explains the derivation of the word, whilst the latter adds some distinguishing attribute of the thing itself. If it be said: the word *parable* is derived from the Greek, *παραβαλλειν*, to compare, we have an example of verbal definition. If it be added: the word *parable* signifies a particular kind of curve lines, we have an example of nominal definition.

§ 122.

ANALYTICAL AND GENETIC DEFINITION.

The process of defining, and, as a consequence, a definition itself, may be analytical or genetic.

1. A definition is *analytical* when it sets forth the essential nature of a thing by developing the attributes included in the conception of it. The conception itself being given, it is the office of analytical definition to resolve it into its necessary constituent elements. *E. g.*, The circumference of a circle is a line terminating in itself, all the points of which are equally distant from one

particular point within. An eclipse of the moon is an obscuration of the moon's disk by the shadow of the earth.

2. It is *genetic* when the necessary constituent parts of a thing are set forth in the order in which *it comes to exist*. Genetic or synthetic definition begins with the origin of a thing, and then advances by adding one essential part after another until the complete conception has been produced. *E. g.*, The circumference of a circle is formed by drawing a line around and at all points equally distant from a given fixed point, called a centre, until it meets the point of departure. We get an eclipse of the moon whenever the earth occupies a position relatively to the sun, in which it casts its shadow upon the moon.

Genetic definition is fundamental; analytical definition follows from it as a consequence; the former is best adapted to philosophy, the latter, to the discursive sciences.

§ 123.

THOROUGH AND COMPLETE DEFINITION.

If analysis be continued, and the definition is

itself in turn defined, the process of explication becomes *thorough*. Thus we ascend or go back analytically from one definition to another, from the less general to the more general, until we reach certain conceptions which do not require any further reduction, and cannot be referred to any more general or certain than themselves; and for this reason are called fundamental conceptions. Such a conception is *space* in Geometry, or *contraction* and *expansion* in Natural Philosophy.

But we may also reverse the order of the series of definitions. Beginning with these fundamental conceptions, we may descend synthetically, from one definition to another, from the more general to the less general, until we reach the lowest or least general conceptions of the system. When this method is applied, the explication becomes *complete*. The union of both methods, the analytical and synthetical, results in an *exhaustive* process of explication.

§ 124.

DESCRIPTION, EXPLANATION, LOCATION.

To prepare the way for proper definition, par-

ticularly as regards the empirical sciences, it is necessary to employ Description, Explanation, and Location.

1. *Description* is as full a statement of the essential and accidental attributes of an object as is necessary, in order that the understanding may acquire a clear view or conception of it, and thus distinguish it definitely from all other objects. Vid. § 22.

2. *Explanation*—*explanatio*—consists in drawing an accurate distinction between the essential and accidental attributes of an object, and in a critical elucidation of both. It has reference, mainly, to such objects as are not accessible to the senses.

3. *Location* — *locatio* — specifies the genus proximum of a conception, and thus assigns it its relative position in the particular category of cognitions to which it belongs. *E. g.*, Imagination holds a place between sense and the understanding, and mediates both. A circle is a mathematical figure.

CHAPTER II.

OF DIVISION.

§ 125.

DEFINITION relates to the contents of a conception ; Division—divisio—to its extent. The one elucidates a conception intensively, the other, extensively.

§ 126.

LOGICAL DIVISION.

Logical Division consists accordingly in the complete development of the essential extent of a conception. Or, to divide logically, is *to represent the objects which a conception comprehends, both in their relation to each other, and in their relation to the conception itself.*

§ 127.

OFFICE OF LOGICAL DIVISION.

Logical Division regards the conception to be divided, as a *genus*, and resolves it into its several *species*.

Each species contains not only the genus-conception with all its attributes, but in addition, it includes also certain other attributes, which are peculiar to itself; in virtue of these peculiar attributes, it is distinguished from every other species. Thus, whilst the several species differ positively, they possess the attributes of the genus-conception in common. Hence, considered in reference to the genus-conception, they are identical or subordinate conceptions; but in reference to the attributes peculiar to each, in virtue of which they are different, they are opposite or co-ordinate conceptions.

As to its form, therefore, logical division is a disjunctive judgment, though as expressed in a proposition, the disjunction is not always apparent.

§ 128.

ELEMENTS OF LOGICAL DIVISION.

In consequence, Logical Division involves the following elements:

1. A *given conception* that is to be divided, or the *divisible whole*—totum divisum, or, dividendum.

2. A *principle* of division—principium, or, fundamentum divisionis; that is, some general attribute of the divisible whole, which determines the character of the division; in other words, a point of observation, from which the understanding ascertains what the specific differences are that are concluded under the divisible whole.

3. The *members* of the division—membra dividenda; that is, the various particulars or specific differences concluded under the divisible whole, as determined by the principle of division.

If the vessels or ducts of the human body are divided into bloodvessels, lymph ducts and excretory ducts, the principle of division is the material which they contain. Taking *race* as the principle of division, we divide mankind into Caucasians, Americans, Malays, Mongols, and

Africans. According to the system of Linneus, plants are divided into phanerogamic and cryptogamic.

§ 129.

If a division has two members, it is called a dichotomy; if three, a trichotomy; if four, a tetrachotomy; if more than four, a polytomy.

§ 130.

COLLATERAL DIVISIONS.

As we may reflect upon a given conception from various points of observation, we discover in it different principles of division. And the conception is susceptible of as many different divisions as there are different principles discoverable. Thus we get collateral divisions—co-divisiones.

We may, for example, divide *granite* into primary and secondary, when we consider it as to its *origin*; or into fine-grained and coarse-grained, when we consider it as to its *constitutive parts*. *Man* may also be variously divided.

If we take *nationality* as the principle of division, we have English, French, Germans, Greeks, Italians, etc.; if *morality*, we have the virtuous and vicious; if *sex*, males and females; if *strength* of mind, we have docility or simple capacity, talent and genius; if the *objects* upon which mind is instinctively directed, we have poets, musicians, sculptors, philosophers, mechanists, etc.; or if we take *religion*, we have Pagans, Mohammedans, Jews, and Christians. In each division the given conception is the same, but we get a particular set of members of division for every principle we adopt.

§ 131.

SUBDIVISIONS.

The division, however, may be carried still further. Each member of a division may itself be regarded as a divisible whole, from which, in consequence, a subordinate division may be unfolded. Each member, again, of the subordinate division may, in turn, be subjected to the same dividing process; which may be continued to an indefinite extent. Thus we get *subdivisions*—sub-

divisiones. That division to which any subdivision is immediately subordinate, is called a *superior* division.

As each member of a subdivision may be subjected to a dividing process, it follows that the same division may be both a subdivision and a superior division : a subdivision in its relation to a higher, and a superior division in its relation to a lower division. *E. g.*, All creatures are either rational or irrational. Irrational creatures are either organic or inorganic. Organic creatures are either animate or inanimate. The second division is a subdivision in its relation to the first, but a superior division in its relation to the third.

§ 132.

FUNDAMENTAL DIVISION.

The division which comprehends all the different series of subdivisions, is called the *fundamental* or *primary* division—*divisio fundamentalis*, or, *primaria*. If a fundamental division be conducted through all collateral divisions and subdivisions, until it comprehends the lowest or

ultimate species of objects, the result is a complete classification, or a comprehensive outline of a whole, to which all its parts are related as members of an organism. As an illustration, we continue the example of § 131. Irrational organic creatures are either animate or inanimate. Irrational animate creatures are either insects, reptiles, fishes, birds, or quadrupeds. Quadrupeds are either granivorous or carnivorous; each of which are again divided into various families. Thus we may subdivide and resubdivide, quadrupeds, birds, fishes, etc.; then inanimate creatures; then inorganic creatures; and then rational creatures; until we reach all the ultimate species of every possible subordinate series. The fundamental division is the first one: all creatures are either rational or irrational; and a superior division is any one to which a subdivision is immediately subordinate, as, *e. g.*, quadrupeds are either granivorous or carnivorous, in its relation to any subdivision that may follow. The whole classification constitutes a systematic view of creation, or a general idea developed according to the laws of thinking.

§ 133.

ORDER OF DIVISION.

The foregoing principles determine the general order of division. In the first place, elucidate the given conception or the divisible whole, by a complete definition; secondly, settle the principle of division, which must be an essential attribute of the given conception; next, determine by this principle the several species of the divisible whole; then, take each species in turn as a divisible whole, again settle a principle of division, and determine its several subordinate species; and thus advance, step by step, until the process of division and subdivision is complete. The process is complete when we can discover no additional species in the extent of the given conception.

§ 134.

FIRST RULE FOR DIVISION.

From the nature of division, we deduce the following particular rules:

1. *Every division must have a principle*—divisio ne careat fundamento. This principle is derived

from some constituent or essential aspect of the divisible whole, and must be held firmly as the only divisive force throughout the entire process of division.

If this rule is not observed; if some false view, or accidental attribute, be taken as the principle of division; or if different principles are assumed, the result will not be a real, but an apparent, or a superficial, or confused division.

§ 135.

SECOND RULE.

2. *The members of the division must be in opposition, and thus mutually exclude each other*—formæ sint repugnantes; membra sint opposita. Otherwise the disjunction is not real, but only apparent. A violation of this rule is most liable to occur when one well-defined principle of division is not held firmly, and applied consistently throughout the entire process. If, *e. g.*, we divide human actions into *good* and *useful*, the division is false; for the members are conceptions in agreement, and therefore not mutually exclusive. Both may be predicated of the same action.

§ 136.

THIRD RULE.

3. *The division must be regular*—divisio fiat in membra proxima. It must begin with those members which are derived *immediately* from the divisible whole, and then advance to such as, next in order, are derived *mediately*. A violation of this rule is called *a leap*—saltus in dividendo. *E. g.*, To divide nature into animals, plants, and minerals, is a *saltus in dividendo*. Nature should first be divided into organic and inorganic; then, the former into plants and animals, and the latter into minerals, fluids, etc. The received division of angles into right, obtuse, and acute, is open to a similar criticism; for, strictly speaking, it takes a leap, obtuse and acute being a subdivision of oblique angles.

§ 137.

FOURTH RULE.

4. *The division must be adequate*—divisio sit adæquata. All the members of the division

taken together, must be equivalent to the divisible whole, and thus exhaust it.

If not equivalent, the division is either too *broad* or too *narrow*—aut latior aut angustior suo divisio. It is too broad when it comprehends more members than are to be found in the extent of the divisible whole; and too narrow, when it does not comprehend as many. *E. g.*, The division of *extension* into bodies, planes, lines, points, etc., or of *plants* into grass, trees, polyps, etc., is too broad; that of *poisons* into mineral and vegetable, or of *modern nations* into Italians, Greeks, and Germans, is too narrow.

§ 138.

FIFTH RULE.

5. *Division must observe a proper measure*—ne fiat nimia;—that is, it is not allowable to recognize trivial and non-essential differences; for it is the design of division, not to descend to unimportant minutiae, but to furnish a distinct and comprehensive view of a system; hence the necessity of the rule.

The tendency of excessive division is rather to produce confusion than clearness and compre-

hensiveness of conception. Seneca says: *Idem enim vitii habet nimia, quod nulla divisio. Simile confuso est, quidquid usque in pulverem sectum est.*

§ 139.

PARTITION AND NOMINAL DIVISION.

It is necessary to distinguish logical division from partition and nominal division.

1. *Partition*—*partitio*—analyzes the constituent parts of a whole, its design being to produce a knowledge of the particulars belonging to the contents of a conception. *E. g.*, Man is composed of body and soul. It approaches the nature of definition, and frequently takes the place of it, particularly when its objects are sensuous, as, *e. g.*, A tree consists of roots, trunk, and top. Yet partition and definition are not identical; for partition does not comprehend the proximate genus.

2. *Nominal division* or *distinction*—*distinctio*—pertains to the variable import of language; that is, to the different significations of the same word in different connections, its design being to specify the sense in which it is used in a given case. Such words, *e. g.*, are world, court, band, lock, church, etc.

CHAPTER III.

OF ARGUMENTATION.

§ 140.

DEFINITION unfolds the specific contents, and division the complete extent, of the cognitions which enter into the construction of a scientific system. But these results do not fully satisfy the tendencies of the understanding; it demands a perception of the truth, not only of the principle, but also of all the parts or cognitions of a system. Hence arises the necessity of argumentation, or proof, whose office it is to evince *the truth* of single and of a concatenated series of cognitions. This is done by showing how a given particular is included in a known general.

Argumentation presupposes definition and division; for a demonstration of the truth of a conception depends upon a knowledge of what the conception itself is, both as to its contents and extent.

§ 141.

NATURE OF PROOF.

Argumentation, or proof,—argumentatio, demonstratio, probatio—accordingly, *consists in deducing the truth of a given judgment from other judgments known and acknowledged to be true.* Or, to prove, signifies to establish the truth of a proposition by arguments.

§ 142.

FORM OF PROOF.

Every demonstration or process of proof is, therefore, as to its form, a syllogism, and in this respect may vary as much as the syllogistic formula itself; for the essential nature of proof underlies all the principles and rules which have been developed in relation to syllogisms.

Proof is an application of the syllogistic formula in order to establish the truth of a given judgment. The design of formal reasoning, or of the syllogism, is simply logical sequence, but that of proof, is *truth*.

§ 143.

ELEMENTS OF PROOF.

Every demonstration involves the following elements:

1. A *thesis*—a given judgment, the truth of which is to be established.

2. A ground of proof, or *arguments*—arguments. These are certain judgments, the truth of which involves the truth of the thesis.

3. The *power of proof*—*nervus probandi*—which consists in the logical connection between the thesis, as a conclusion, and the arguments, as premises. The first premiss, or major proposition, is a general or a containing whole; the second premiss, or minor, affirms that the subject of the given judgment is included as a particular in the general, or that it is a part of the containing whole: hence, the truth of the conclusion must follow, by necessary consequence, from the truth of the premises; or, to affirm the truth of the arguments is to affirm the truth of the thesis, in virtue of their logical connection; for whatever predicate agrees with a general subject, agrees also with each particular belonging to it.

The thesis and the arguments together constitute the *matter* of proof.

§ 144.

VALIDITY OF PROOF.

The validity of argumentation depends mainly upon the truth of the arguments. This is either immediate or mediate.

1. The truth of the arguments is *immediate* if they are axioms or postulates, that is, self-evident propositions; which constitute the fundamental facts or the first principles in which the different sciences begin, and from which they are developed by different processes of reasoning.

2. The truth of the arguments is *mediate* when they are not self-evident, but must themselves be established by other arguments. Their truth being thus derived from other propositions, they do not themselves establish the truth of the thesis, but are only the medium by which some more general truth establishes it,—a link in the chain of proof. To satisfy the demands of science it is necessary, in this case, that the order of argumentation go back step by step, descend

from less general to more general, from less certain to more certain arguments, until it reaches ultimate propositions or principles.

§ 145.

THE ORDER OF PROOF.

From the truth of arguments as being either immediate or mediate, it follows that the order of proof is, like a polysyllogism, either retrogressive or progressive.

1. The order of proof is *retrogressive* or analytical, when, commencing with that which has been logically established, the thesis, we pass to that by which the thesis has been established, the arguments. The arguments then become theses which are in turn to be logically established; and thus we go back regularly—*regressus a principiatis ad principia*—searching for the principles of arguments, until we reach self-evident propositions. The analytical order begins, accordingly, with the proposition to be demonstrated, and, resolving it into its component parts, passes on to a proposition that is ultimate, and therefore possesses the strongest demonstrative force.

2. The order of proof is *progressive* or *synthetical*, when we begin with first principles, and then, in virtue of the necessary connection between ground and consequence, deduce those truths from them which they condition and involve—*progressus a principiis ad principiata*. The *synthetical* order, accordingly, regards phenomena as consequences, and evolves a general principle into its particulars.

§ 146.

DIRECT AND INDIRECT PROOF.

As to its form, proof is of two kinds, *direct* and *indirect*.

1. Proof is *direct* or *ostensive*, when the truth of the thesis or conclusion is deduced immediately from the truth of the arguments.

2. Proof is *indirect* or *apagogical*, when the truth of the thesis is inferred from the falsity of its contradictory opposite.

The union of both kinds of proof constitute an *apodictical* demonstration; that is, their united force convinces the understanding that the conclusion is true of necessity; it cannot be false.

§ 147.

INDIRECT OR APAGOGICAL PROOF.

An apagogical demonstration begins with the contradictory of the thesis; then deduces from this contradictory, certain propositions which violate admitted truths and principles; and, reasoning by removal, or *modo tollente*, infers the falsity of the contradictory from the falsity of its unavoidable inferences. Hence called also *ductio in absurdum*. The truth of the thesis then follows from the falsity of its contradictory according to the Laws of Opposition. *E. g.*, To prove the thesis indirectly: Washington *was a patriot*, we assume its contradictory: Washington *was not a patriot*, from which, in view of his long, arduous, and various labors in the service of his feeble country, it must follow that he was ambitious of civil and military power, was covetous, sought self-aggrandizement, etc.; but as these unavoidable inferences contradict admitted facts, they are false; if they are false, the antecedent or the contradictory must be false; and if the contradictory must be false, we infer that the thesis must be true.

Aristotle says: ἀπαγωγή εἰς τὸ ἀθύνατον.

An apagogical demonstration is based upon the Law of the Excluded Third (§ 11), in connection with the principles of opposition. Vid. §§ 27 and 51. Hence it most commonly takes the form of a dilemma.

§ 148.

USE OF APAGOGICAL PROOF.

Apagogical proof is particularly adapted to the purposes of criticism and polemics, as it enables a defender of truth to present a striking refutation of erroneous and untenable positions, by showing that these involve direct contradictions, and thus destroy themselves.

But it is necessary to restrict the use of this kind of proof; for,

1. If employed by itself, ostensive proof being neglected, it is liable to great abuse; it may easily degenerate into sophistry or mere trickery. The opposite of the thesis assumed, may be a concealed contrary instead of a contradictory. Or the incomprehensible or mysterious, may be taken for the impossible.

2. Apagogical proof does, indeed, not allow

the understanding to admit the truth of the given thesis, but this does not suffice. The nature of science requires a kind of proof that will not only lead us to believe that a proposition is true, but also enable us to understand the reason—*principium cognoscendi*—why it is true; why it is what it is, and not something else. Vid. § 12. Hence the necessity of ostensive proof; for it alone can give us an insight into the reason or ground of truth.

§ 149.

OBJECTIVE AND SUBJECTIVE PROOF.

As the validity of arguments may be general or particular, we get another division of proof into objective and subjective.

1. A demonstration is *objective*, or, κατ' ἀλήθειαν, when the arguments possess general validity, and thus evince the thesis to be perfectly certain, the very possibility of its opposite being excluded. The demonstrative force is in the nature of the arguments, and does not therefore depend upon any time, place, or individual, or any other accidental circumstances.

2. A demonstration is *subjective*, or κατ' ἀνθρώπων, or ex-concessis, when the arguments are valid only in their application to particular cases, and the thesis possesses only relative certainty. The demonstrative force is not in the nature of the arguments, but is derived from the concessions of an individual.

Strictly considered, however, this division lies outside of the sphere of science; for none other than objective proof, or a demonstration *ad veritatem*, possesses scientific value. Subjective proof, or a demonstration *ad hominem*, has its proper place in the affairs of practical life, and serves the purpose of persuasion rather than of conviction.

§ 150.

PROBABILITY.

Apodictical proof alone is strictly scientific, because, by excluding the possibility of the truth of its opposite, it convinces the understanding of the absolute certainty of the thesis. It is necessary, therefore, to distinguish it also from *probable* proof, which includes Analogy and Induc-

tion. The nature of the arguments serves to determine the mind in favor of, rather than against, a given proposition, but they do not necessitate the acceptance of it as certainly true; because the impossibility of its opposite is not evident.

If the arguments relating to a given proposition, preponderate in favor of its truth, it is *probable*. The reasons for its truth possess more force than those for its falsity.

If, on the other hand, the preponderance of the arguments is against the acceptance of a given proposition, it is *improbable*. The reasons against it possess more force than those for it.

If the arguments for and against it, are equal, both as to number and force, the proposition is said to be *doubtful*.

Probable proof possesses more or less force, as it approximates to, or is remote from, an actual demonstration.

§ 151.

ANALOGY.

Analogy—argumentatio analogica—compares

the points of resemblance between different objects belonging to the same species or genus, and then infers that these objects are themselves alike. It is based upon the following principle :

IF CERTAIN KNOWN PROPERTIES OR QUALITIES OF TWO OR MORE OBJECTS BELONGING TO THE SAME SPECIES ARE ALIKE, THEN THE REMAINING UNKNOWN PROPERTIES OR QUALITIES ARE ALIKE ALSO.

If the conceptions, A and B, are of the same species; and if the attributes a, b, c, d, e , belong to A, and the attributes, a, b, c , to B, we conclude from this partial resemblance upon an entire resemblance—from the identity of some, upon the identity of all the attributes; in other words, we infer, that the attributes, d and e , belong to the conception B.

Ancient logicians very properly regarded Analogy as Proportion; for it is a process of reasoning which proceeds upon a comparison of objects, and concludes upon unknown attributes from those which are known. Thus we conclude upon the nature of the moon from the nature of the earth, and upon the flattening of the earth, at the poles, from the effects produced upon a soft body by a rapid rotary motion. Thus also the attraction of gravitation led to the discovery of

the law which regulates the motion of the heavenly bodies.

§ 152.

INDUCTION.

Induction — argumentatio per inductionem—adduces a number of particulars, known as the marks or properties of an object, and then from these infers the nature of the object itself. It is based upon this principle: THAT WHICH IS TRUE OF MANY, OR A MAJORITY OF, INDIVIDUALS OR OBJECTS BELONGING TO A GIVEN SPECIES OR GENUS, IS TRUE ALSO OF THE SPECIES OR GENUS ITSELF.

The process of inductive proof may be reduced to a formula, as follows :

a, b, c, d, e, are C.

A comprehends a, b, c, d, e.

Therefore, A is C ; or all A's are C's.

Analogy respects the *contents* of a conception ; but Induction pertains to its *extent*, or to the objects which it comprehends ; for it is a process by which we reason from single individuals belonging to a species or genus, to the nature of a

whole class of objects. Thus, from the illusions of the eye and the ear, we conclude upon the deceptive character of impressions made on all the senses.

§ 153.

ANALOGY AND INDUCTION.

Neither Analogy nor Induction, however, can produce entire certainty, or the conviction of necessary truth. They can produce probability only; but this approaches the nature of certainty in proportion as the proof becomes complete; that is, in the case of Analogy, as the number of known qualities or attributes; in the case of Induction, as the number of known things, marks, and phenomena, increases.

In their bearing upon the empirical sciences, both kinds of proof are very important, and fertile means of advancing knowledge; for experience convinces us more fully from day to day, that the essential nature of genera and species, comes to view as much in similar as in different phenomena.

§ 154.

FIRST RULE FOR ARGUMENTATION.

From the nature and design of Argumentation, we deduce the following rules by which to determine its validity both as to matter and form.

1. *Do not substitute a foreign proposition for the thesis.*—The proposition to be established must be kept fully and distinctly in view. This rule is violated whenever the conceptions of the thesis are exchanged for others which it does not contain. The error is called μετὰβασις εἰς ἄλλο γένος or ἐτεροζήτησις—mutatio seu ignoratio elenchi—a misapprehension of the question.

Two cases of violation may arise: the process of proof establishes *too much* or *too little*, whenever the arguments are not entirely commensurate with the conceptions contained in the thesis. In order to avoid these errors, it is necessary to determine the conceptions of the thesis very accurately, both as to contents and extent.

1. The process of reasoning proves *too much* whenever, in addition to the thesis, some false proposition follows from the premises. The extent of the premises is greater than the extent of

the thesis. And the rule applies: *qui nimium probat, nihil probat*.

2. The reasoning proves *too little* whenever a part only of the thesis follows from the premises. The extent of the premises is less than the extent of the thesis. As regards that part of the thesis which follows from the premises, the process of proof may be valid, but it is not as regards the whole of it.

§ 155.

SECOND RULE.

2. *A process of proof must begin with fundamental principles, or be reducible to such.* The opposite error is called *petitio principii*, or, *a begging of the question*; and occurs when some proposition is assumed as an argument, the truth of which has itself not been established.

§ 156.

THIRD RULE.

3. *No proposition can be used as an argument, the truth of which is not the ground or principle*

upon which the thesis rests, but only a consequence following from the truth of the thesis itself. A violation of this rule is called *ὕστερον πρότερον*. The consequence is taken for the principle. *E. g.*, To infer the freedom of human action from moral accountability.

§ 157.

FOURTH RULE.

4. The truth of the conclusion having been deduced from the truth of the premises, *we cannot in turn infer the truth of the premises from the truth of the conclusion*; in other words, we cannot infer the truth of the conclusion and the premises from each other reciprocally; A from B, and B from A. To violate this rule is to *argue in a circle*—*circulus seu orbis in demonstrando*. This fallacy is allied to that of *hysteron proteron*, but they are not identical. It would be arguing in a circle, *e. g.*, to conclude upon the truth of Revelation from the existence of God, and then endeavor to prove the existence of God from Revelation.

The fallacy of *hysteron proteron* takes as an

argument a proposition, the truth of which follows from the conclusion as its principle; that of a circle first infers the truth of a conclusion, from an assumed proposition, as an argument, and then endeavors to establish the truth of this proposition by the conclusion.

§ 158.

FIFTH RULE.

5. *There must be a logical connection between the several arguments themselves, and between all the arguments and the thesis.* A violation of the rule constitutes a flaw, a chasm, or leap—*saltus in demonstrando*—in the syllogistic series in which the process of demonstration consists. Some link in the chain, some necessary intermediate member of the series, is omitted, and it becomes difficult to understand the logical connection of the arguments, or appreciate the force of the conclusion.

It is necessary to distinguish the *saltus in demonstrando* from the so-called *saltus legitimus* of Enthymemes.

§ 159.

FALLACIES.

A process of proof that violates the laws of thinking, or any of the foregoing rules, is called a *fallacy*. If, from want of knowledge or discipline of mind, a fallacy is perpetrated unintentionally, it is a *paralogism*. If perpetrated with the design to deceive—to present an error in the garb of truth—it is a *sophism*. A sophism, accordingly, endeavors to conceal a false proposition under the logical form of sound reasoning, in order to give the appearance and authority of truth to error.

A fallacy may easily be detected and exposed by a careful application of the laws and rules of Logic to the matter and form of conceptions, judgments, and reasoning.

We conclude by giving the names of the more common forms of sophistical reasoning:

1. *Sophisma amphiboliæ seu fallacia ambiguitatis.*

To this class belong:

- a. *Fallacia sensus compositi et divisi.*

- b.* Fallacia a dicto secundum quid ad dictum simpliciter.
- c.* Fallacia figuræ dictionis.
- 2. Sophisma fictæ universalitatis.
- 3. Sophisma falsi medii; also, fallacia non causæ ut causæ. To this class belong:
 - a.* Sophisma cum hoc, vel post hoc, ergo propter hoc.
 - b.* Sophisma pigrum seu ignava ratio.
 - c.* Sophisma polyzeteseos, seu fallacia quæstionis multiplicis.
 - d.* Sophisma heterozeteseos, seu fallacia quæstionis duplicis.

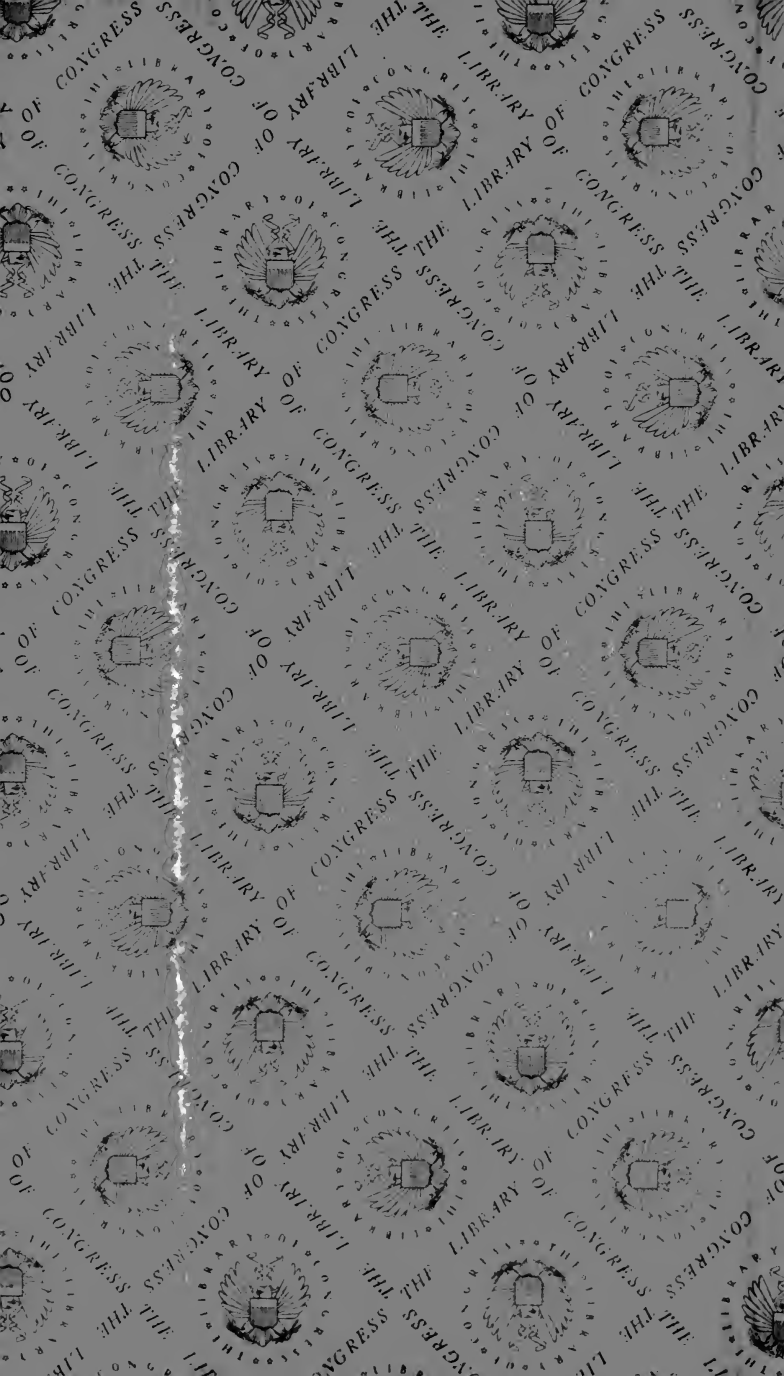
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